

IO STATE
IVERSITY
UG 4 1922
BRARY

NATIONAL

ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

WITH RADIO SERVICE SUPPLEMENT

Vol. 21, No. 10

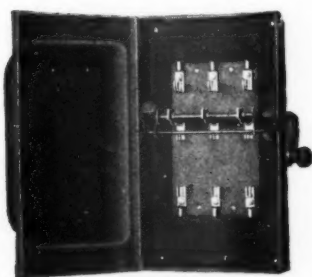
Official Journal of National Association of Electrical
Contractors and Dealers

AUGUST, 1922

Install "BULL DOG" Safety Type Switches



The fine appearance of the "Bull Dog" cabinet rivals the finest factory equipment in appearance.



What goes on inside is the important thing in a safety type switch. Because of its superior construction, positive make and quick break always, are what goes on inside the "Bull Dog."

Ease, convenience and low cost of installation were given first consideration in developing "Bull Dog" Safety Type Switches—the sturdiest switches in the world.

"Bull Dog" Safety Switches have ample wiring space, proved most time saving by electricians doing actual work. Convenient knock-outs and interchangeable and removable end-plates also save wiring time.

The built-in sturdiness and dependability of "Bull Dog" Safety Switches meet the most exacting requirements. Their beauty makes the finished job one to be proud of. The satisfaction of the "Bull Dog" Switch user reflects credit on the contractor who recommends and installs them.

You can safely quote "Bull Dog" prices in your estimates. Quick make, quick break and interlocks are combined in every "Bull Dog" Safety Type Switch. They are all type "A" construction and bear the Underwriters' Classification "A."

If you want low installation cost, pride in a good job well done and the approval of your customers—install "Bull Dog" Safety Type Switches.

For Safety—Put a "Bull Dog" on the Job

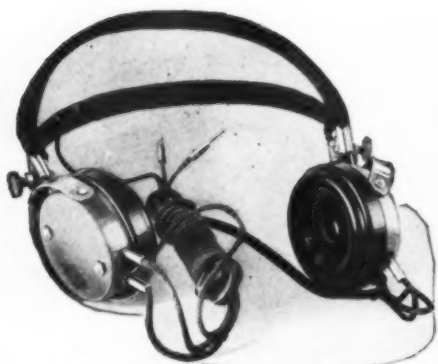
BULL DOG
MUTUAL ELECTRIC & MACHINE CO.
DETROIT MICH. U.S.A.

"THE BEST THAT MONEY CAN BUY"

THE RADIO TRADE



MARK OF QUALITY



DeVeau Gold Seal Radio Head Set
Cat. No. 843



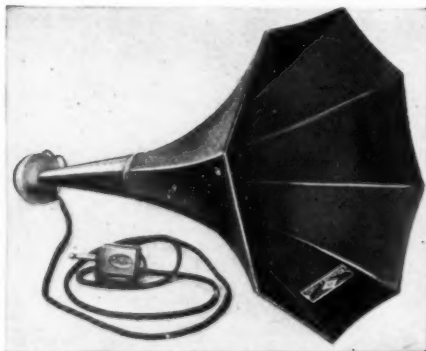
DeVeau "Silvertone Standard" Radio
Loud-Speaker. Cat. No. 833



DeVeau Gold Seal Radio
Head Set. Cat. No. 844



DeVeau "Silvertone Junior" Radio Loud-
Speaker. Cat. No. 834



DeVeau "Silvertone Station Type" Radio
Loud-Speaker. Cat. No. 836



DeVeau "Silvertone Midget"
Radio Loud-Speaker.
Cat. No. 835



DeVeau Radio Hand Micro-Trans-
mitter. Cat. No. 845



DeVeau Radio Desk Micro-Transmitter
Cat. No. 846



DeVeau Radio Adjustable Arm
Micro-Transmitter. Cat. No. 847



DeVeau Radio Flat Plug. Cat. No.
829. DeVeau Radio Round Plug.
Cat. No. 828

We manufacture the following RADIO APPARATUS:—DeVeau "Gold Seal" Radio Head Sets, DeVeau "Silvertone" Loud-Speakers, DeVeau Radio Transmitters, DeVeau Radio Cams, DeVeau Radio Jacks, DeVeau Radio Binding Posts, DeVeau Radio Phonograph Attachments, DeVeau Radio Plugs, and other Radio Specialties.

SEND FOR DESCRIPTIVE DATA AND DISCOUNTS

STANLEY & PATTERSON, INC.

New York, U. S. A.

DISTRICT SALES OFFICES:

BOSTON
C. R. Corcoran
100 Boylston St.
BUFFALO
C. K. Wyatt
241 Lexington Ave. Real Estate Trust Bldg.

SAN ANTONIO
Kemp Haythorne
333 McKinley Ave.
PHILADELPHIA
J. A. Vaughan
Parke and Jaques
305 7th Avenue

PITTSBURGH
Parke and Jaques
305 7th Avenue

SEATTLE
P. L. Hoadley
Seaboard Bldg.
LOUISVILLE
Electrical Sales Co.
Kenyon Bldg.

SAN FRANCISCO
Clapp & LaMoree
589 Howard St.
CHICAGO
Doherty-Hafner Co.
730 W. Monroe St.

LOS ANGELES
Clapp & LaMoree
310 E. 4th St.
BIRMINGHAM
W. H. Beaven
Jefferson Co. Bank Bldg.

DETROIT
DeVeau-Bartling Co.,
602 Equity Bldg.
HABANA
Arnesto N. Rodriguez
Abreu Bldg.

A GOOD SET OF FIXTURES

at a remarkably low price



This beautiful five piece set of fixtures, all brass except chain, heavy cast brass arms, best quality finishes. Dependable fixtures which will sell quickly, and bring you many reorders.

5 Piece Set ----- \$12.95

In lots of 12 sets or over --- \$12.35

INDIVIDUAL PRICES

1 Light Bracket-----	\$.75
2-light Chamber -----	2.25
3-light Library -----	2.75
4-light Parlor -----	3.75
4 x 1 Dining Room -----	4.25

BARE, PACKED ONE IN A CARTON.
FINISHED IN BROWNTONE, JAP GOLD
OR FRENCH GRAY

CHRISTMAS TREE STRINGS

Here is a chance to buy your Christmas tree strings at rock-bottom prices. Strings are for house current, with plug and eight composition sockets, wired in series.



STRING, complete with plug and

sockets ----- 55c each

Per Hundred ----- \$48.00

We will be glad to quote prices on complete strings with bulbs, one in a box, for either house current or batteries.

Write us for prices on any other standard electrical material

WEINHOFF TRADING CORPORATION

458 BROADWAY

NEW YORK CITY

THE RESOLUTION

Whereas, There is need of words to designate our business and activities; and

Whereas, It is proper that we should deliberately add to our vocabulary such properly derived words as are required; now therefore, be it

Resolved, That the following words be adopted as recognized by us with the meanings attached: (See opposite).

FARQUSON JOHNSON
Editor and General Manager

NATIONAL ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

(Trade Mark)

The Official Journal Published Monthly by the National
Association of Electrical Contractors and Dealers

Radio Service Supplement Last Section

THE NEW WORDS

Electragy—Name of the trade or business of Electrical Contractor-Dealer.

Electragist—A person conducting such a business.

Electragician—A person working at the business.

Electragize—A verb—to work at the business—or to provide electrical equipment.

Electragic—An adjective—relating to the business.

Electragian.

Electragial.

JAY S. TUTHILL, News Editor
G. W. HAUPTLI, Advertising

Volume 21

AUGUST, 1922

Number 10

TO OUR READERS

All matter for publication must be in the hands of the Editor by the 10th of the month preceding publication.

All changes in our mailing list should be received by us two weeks prior to date of publication of the issue with which the change is to take effect.

TO OUR ADVERTISERS

Changes in advertisements and all advertising copy should reach our office not later than the TENTH OF THE MONTH previous to the date of issue.

Table of Contents and Advertising Index Next to Last Page Preceding Radio Service Supplement

SUBSCRIPTION RATES

One Year, Domestic.....\$2.00
Foreign Subscriptions, including Canada, per year.....\$2.50
Single Copies.....20 cents

Copyright, 1921, by The National Association of
Electrical Contractors and Dealers.

Entered as second-class matter September 1, 1919, at the Post Office
at Utica, New York, under the act of March 3, 1879.

PUBLICATION OFFICE:

11 Liberty Street, Utica, N. Y.

Editorial and Business Office:

15 West 37th Street, New York City

Century

Automatic Start Induction POLYPHASE MOTORS



Ratings

1/2 to 60 Horsepower

STARTING TORQUE—of sufficient magnitude to operate that class of apparatus which requires a heavy torque during the period of starting, such as plunger pumps, air compressors, ice machines, etc.

STARTING CURRENT—low enough to make them particularly desirable to fulfill the requirements of Central Stations. They are especially popular where it is necessary to minimize voltage disturbances on lighting circuits.

FUSE PROTECTION—fuses used for running protection are sufficient for starting and small enough to protect against an interruption of one phase of the supply system.

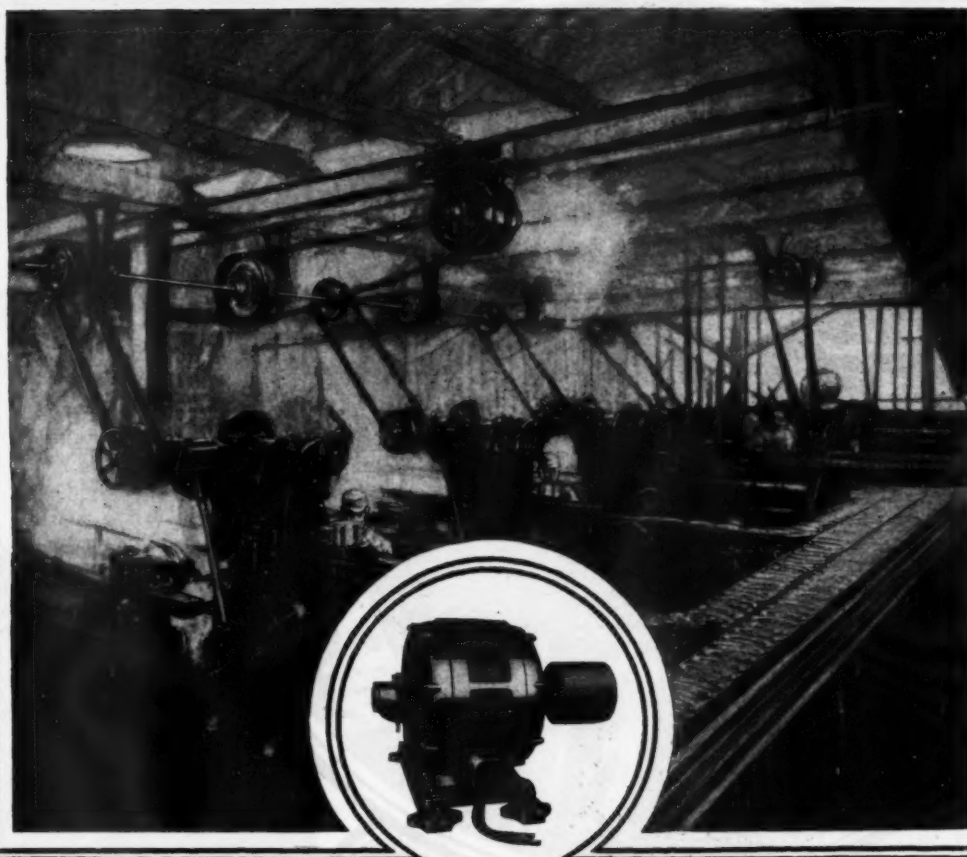
TEMPERATURE RISE—not more than 40° Centigrade under continuous full load in a room of normal temperature and ventilation.

THEY KEEP-A-RUNNING

CENTURY ELECTRIC COMPANY

ST. LOUIS, MO., U. S. A.

Sales Offices in Principal Cities



THE steam and heat of the food packing plant, the dust and grit of the cement mill, the humid, lint laden atmosphere of the textile mill—all adverse service conditions such as are found in many types of industrial plants have but little effect upon the life and reliability of R & M motors. Their low temperature rating (40°), thoroughly moisture-proofed windings, dust-protected bearings and sturdy construction insure long, reliable service, however severe the operating conditions may be.

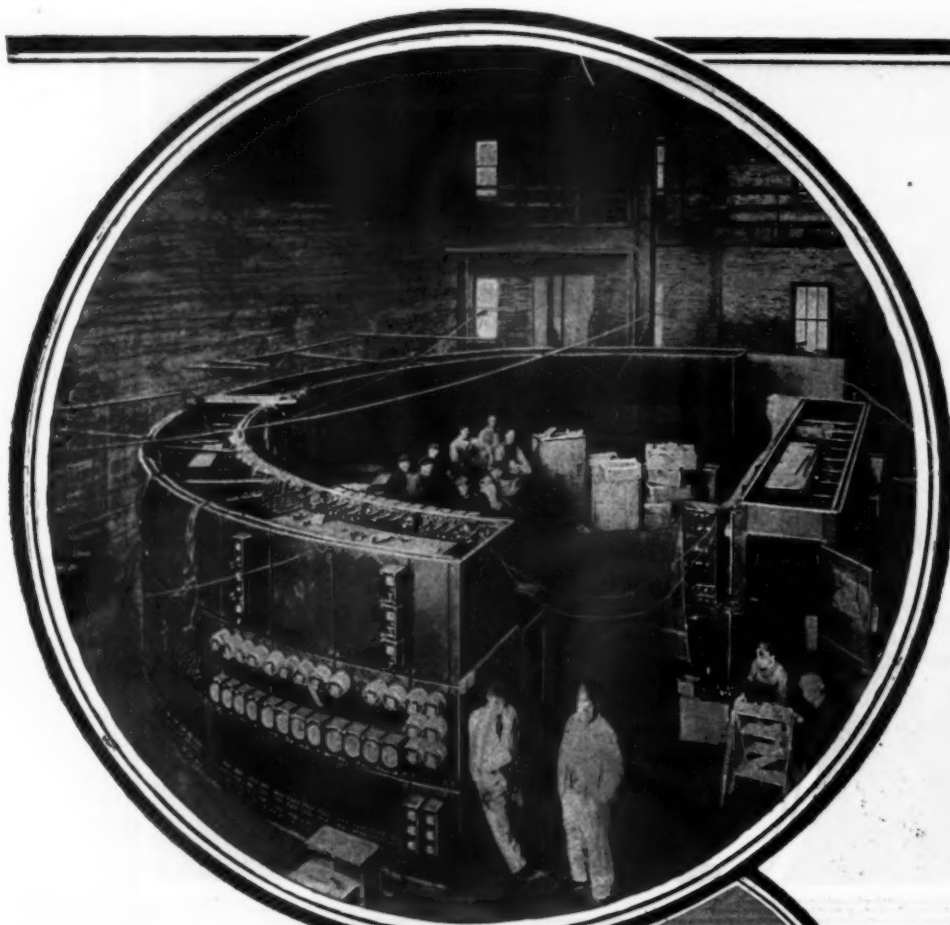
Distributors and dealers who have supplied R & M motors for plants where they are subjected to unusual service conditions, also the utilities supplying the power, find the experience of such users a big help in selling other similar prospects on the idea of electric motor drive.

THE ROBBINS & MYERS COMPANY

SPRINGFIELD, OHIO

BRANTFORD, ONTARIO

Robbins & Myers Motors

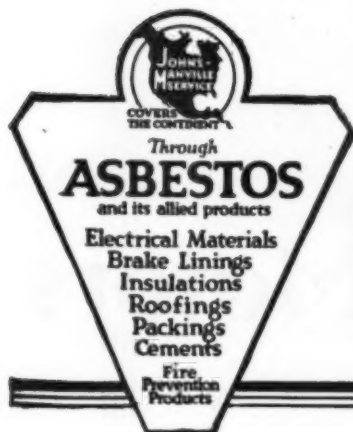


As Ebony Asbestos Wood can be accurately machined, all the panels on both switchboards were bevelled and finished to size at the Johns-Manville Factory before shipping. This made it an easy matter to assemble them on the job without the expensive cutting and fitting which quarried materials often require.

Ebony Asbestos Wood is easily drilled and cut—consider the labor saved in installing apparatus on a switchboard of this size. Note the absence of glare. Ebony Wood takes a neat, dull finish that rests the eyes.



The Hell Gate Station of the United Electric Light & Power Co., New York, represents the last word in Central Station design. Ebony Asbestos Wood was chosen for the switchboards.



JOHNS - ELECTRICAL

Why Hell Gate Station uses Ebony Asbestos Wood Switchboards

Of the many switchboard materials on the market, Ebony Asbestos Wood alone makes no compromise in fully meeting all the essential requirements that a satisfactory switchboard should have.

Ebony Asbestos Wood surpasses all ordinarily used materials in dielectric strength and insulation resistance. It has minimum surface leakage, being unaffected by oil or atmospheric moisture. Its "manufactured-by-formula" construction does away with flaws.

A fundamentally high mechanical strength, combined with toughness and resilience, gives Ebony Asbestos Wood the strength for the most exacting service. It is comparatively light, yet rigid, and withstands rapid temperature changes without warping.

Ebony Asbestos Wood can be easily worked and accurately machined—so accurately that light, tight joints are possible between panels without interposing wood strips as is sometimes done with slate. Another feature is the ease of drilling and cutting. The mounting of apparatus is thus greatly simplified.

Ebony Asbestos Wood is a laboratory quality insulating base made available for switchboard use by low cost. It is made of asbestos rock fibre and a binding cement combined under tremendous pressure and impregnated with a special insulating compound. Its ever increasing use on important work is unquestionable proof of its merit.

JOHNS-MANVILLE, Inc., Madison Avenue at 41st Street, New York City
Branches in 56 Large Cities
For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



Transite Asbestos Wood— for Fire-proof Construction

This shows Transite used at Hell Gate Station as a flooring. It is light enough to lift, strong enough to walk on, and absolutely fire-proof. Transite is similar to Ebony Asbestos Wood, but is not impregnated with an insulating compound. It is extensively used by central stations as a fire-proof construction material.

MANVILLE MATERIALS



They Will Never Stick if They're Union Renewable Fuses

When you buy a "Union" Renewable Fuse you get a fuse that is Renewable in reality as well as in name. A new link can be inserted in jig time without fuss or trouble. And the fuse is good for an indefinite number of renewals!

There is no inner cartridge to swell from moisture or as a result of pressure from gases in a short circuit blow. There are no metal parts that can become fused together from heat. Nothing to stick or cause trouble. "Union" Renewable Fuses are constructed as a fuse ought to be constructed—substantially.

They have strength enough to stand up against the punishment of repeated blowouts, and the few strong, simple parts make possible easy and quick renewals.

The National Board of Fire Underwriters have approved, in the very highest degree, both "Union" Renewable and Non-Renewable Fuses. Fuses and links both bear their inspection label.

Leading electrical jobbers and dealers everywhere sell "Union" Fuses.

Our new 96-page Catalog contains a lot of valuable information that will save you trouble and money. Let us send you a copy.

The "Union" Saves More
Than Any Other Renew-
able Fuse.

Chicago Fuse Mfg. Co.

Manufacturers of Switch and Outlet Boxes,
Cut-Out Bases, Fuse Plugs, Automobile
Fuses, Renewable and Non-Renewable
Enclosed Fuses.

CHICAGO NEW YORK

UNION

RENEWABLE FUSES

save more than ANY other renewable fuse



Reaches
the job
ready
to install



PITTSBURGH

THREAD PROTECTED
ENAMELED CONDUIT

STANDARD

PATENTED

THIS is the year of records—speed! The demand assails you on all sides. Time must be saved on the job to bring in profits. In bidding for jobs, the electragist who figures closest gets the most work.

The electragist with a knowledge of the time-saving features of Pittsburgh Standard holds the advantage. Here's how—

P. S. reaches the job ready to install. Patented Thread Protectors eliminate running dies over pipe ends and reversing couplings. Threads are sharp, true and clean—with just enough enamel to protect from rust.

It costs no more than ordinary enameled conduit. Figure the time saved and you are counting extra profits.

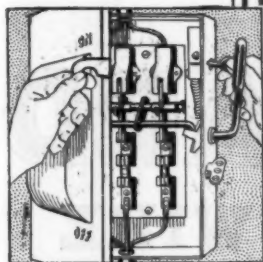
ENAMELED

PITTSBURGH, PA.

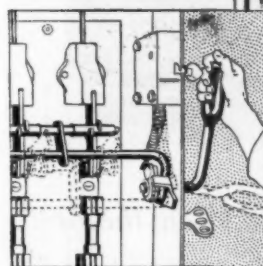
METALS CO.

More Speed
on the job—
P. S. answers
the call





Only authorized persons having key can open the box when the switch is on



Powerful quick make and quick break mechanism enclosed to prevent clogging by dust, etc.



Remove Any Blade or Jaw in 3 Minutes—

Individual Base Construction Insures Low Maintenance Cost and Prevents Base Breakage

Rapid, easy, inexpensive replacement of all current carrying parts is one of the several unusual features of the new 80,000 Series. These are separately mounted on individual bases of moulded insulating material and are removable from the front of the box. The absence of slate reduces weight, eliminates broken bases, and gives a more substantial switch.

Positive Contact Always

In addition to the common "interlocking" feature, the new Square D has an exclusive additional feature: The Square D key permits authorized persons to inspect the switch without interrupting the circuit and to operate the switch with the cover open. The same key locks the cover permanently shut if desired.

Protected against dirt, dust, and grease, the quick make and quick break mechanism of this new switch always functions properly. Danger of burned blades and arcing is practically eliminated. Yet if blades do blister, the Square D multi-spring jaws insure positive contact. And the insulated steel crossbar will neither char, split, nor warp out of alignment, as fibre bars eventually will.

See This Newest Switch Today!

This new Square D represents the ultimate development of the safety switch. To see it—and operate it, just communicate with our nearest office. A representative will call and show you why it is the one switch you will ultimately sell or install.

SQUARE D COMPANY, DETROIT, U. S. A.
PERU, INDIANA WALKERVILLE, ONTARIO



Boston
Buffalo
Chicago

BRANCH OFFICES
New York
Pittsburgh
St Louis
Toronto

Philadelphia
Cincinnati
Milwaukee
Montreal

(13)
Atlanta
Cleveland
San Francisco

SQUARE D SAFETY SWITCH

We are Ready with the



VARIO-COUPLER and VARIOMETER

WRITE FOR PRICES

Also Manufacturers of

ANNUNCIATORS

HOUSE
HOTEL
HOSPITAL
ELEVATOR
MARINE
Wood or Metal
All Styles of
Drops and Resets



Vario-Coupler

BELLS

IRON BOX
WOOD BOX
FIRE-ALARM
SKELETON
VIBRATING
SINGLE STROKE
WEATHERPROOF
ELECTRO-
MECHANICAL

SOCKETS

KEY
KEYLESS
PULL CHAIN
All Finishes

BUZZERS

IRON BOX
WOOD BOX

FIRE ALARMS

CABINETS
BOXES
SYSTEMS FOR CUR-
RENT OR STORAGE
BATTERY

PUSHES

WOOD
METAL
DESK
DOOR
PEAR
FLOOR
MARINE
MULTIPLE
TABLE CLAMP
All Finishes

SHADES

METAL SHADES OF
ALL DESCRIPTIONS

LETTER BOXES

ALL DESCRIPTIONS

FLOOR BOXES

SPEAKING TUBES

TIN TUBE
FLEXIBLE TUBE
WHISTLES
ELBOWS
COLLARS
ROSES



Variometer

BURGLAR ALARMS

DOOR SPRINGS
WINDOW SPRINGS
TRANSOM SPRINGS

TANK ALARMS

W.R.OSTRANDER & CO.

New York Office:
371 Broadway

Factory:
1431 to 1443 DeKalb Ave.,
Brooklyn

HAZARD CODE WIRE



'Made for Users Who Want the Best'

HAZARD Code Wire gives honest value and represents the square deal between the maker and the user.

Mechanically, electrically and chemically, Hazard Wire is far in excess of the requirements of the N. E. C. specifications, and is, therefore, **safe wire**.

HAZARD Code Wire is clean to handle.

It is easiest to "fish."

It is safe.

It lasts longest.

HAZARD MANUFACTURING CO.,

GENERAL OFFICES AND WORKS
WILKES-BARRE, PA.

NEW YORK
533 CANAL STREET

CHICAGO
552 W. ADAMS STREET

PITTSBURGH
2213 FIRST NATIONAL BANK BUILDING

DENVER
1415 WAZEE STREET

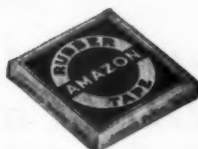
BIRMINGHAM
1761-3 FIRST AVENUE

MAKERS OF QUALITY WIRE ROPE SINCE 1848

A Recommendation —and what it means



Amazon Tape is of highest quality, carefully made to our own specifications. It is a "dry" tape and can be used for any purpose where friction tape is required. Eighty feet per half-pound roll. Most economical, yardage considered.



Amazon Rubber Tape. A rubber splicing tape which forms a solid mass of rubber around the splice. It will fuse together under the heat of the fingers.



Flexible Cords. Made in sizes, insulations, styles, colors, finishes and conductors to meet all requirements. Packed in card board containers, light, easily handled and convenient.

For over 50 years this Company has been a manufacturer and distributor of electrical equipment.

As a distributor to all classes of industries it has been for years, and is one of the world's largest sellers of electrical supplies of every kind.

Based on the experience of industrial needs yielded by this service we offer and recommend according to the work in hand—

Amazon Friction Tape

or

**Victor Friction Tape
Amazon Rubber Tape**

or

**Victor Rubber Tape
Flexible Cords**

and the thousand and one electrical items carried in stock in our 48 Houses.

These supplies are standard in the trade. They are made according to rigid specifications and will meet every requirement that our experience shows must be met.

The nearest House can furnish them from stock.

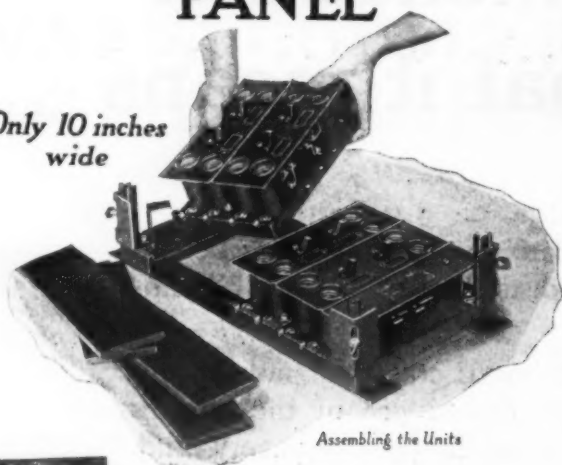
**A
National
Electrical
Service**

Western Electric Company

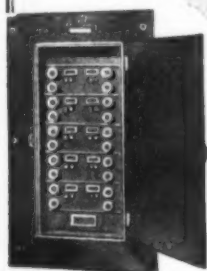
OFFICES IN ALL PRINCIPAL CITIES

THE NEW SPRAGUE NARROW-UNIT PANEL

Only 10 inches
wide



Assembling the Units



Compactness—Lower Price and Quicker Shipment

These Three Features Characterize the New Sprague NARROW-UNIT Design.

It is extremely neat in appearance and embodies that high degree of serviceability which has so long distinguished other types of Sprague Panels.

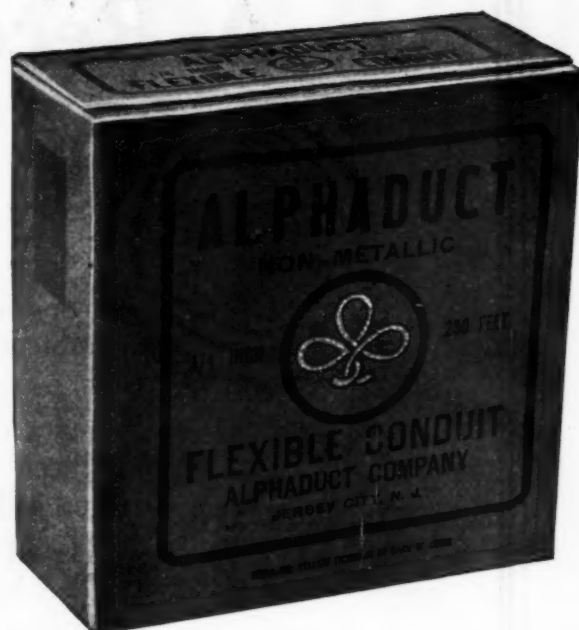
Ask today for our descriptive
bulletin, No. 67900

SPRAGUE ELECTRIC WORKS
Main Offices
327 W. 34th St. New York

Of General Electric Company

Branch Offices
in Principal Cities

"ALPHADUCT"



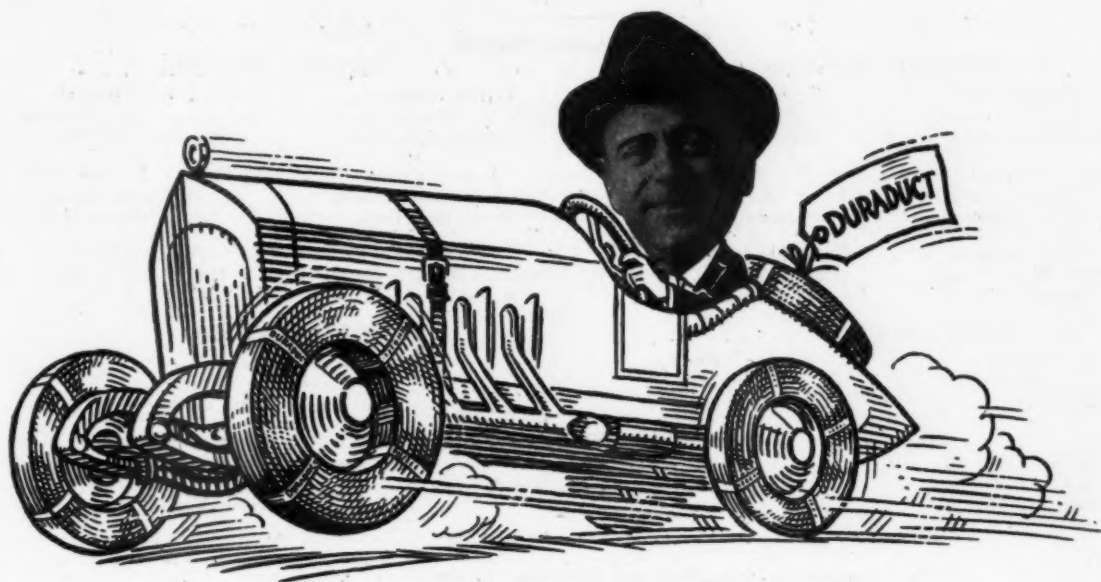
*The following sizes of
ALPHADUCT are now
being packed in individual
cartons.*

7/32 in. in 250 Foot Coils
1/4 inch in 250 Foot Coils
3/8 inch in 250 Foot Coils
1/2 inch in 200 Foot Coils
5/8 inch in 200 Foot Coils
3/4 inch in 150 Foot Coils
1 inch in 100 Foot Coils

Alphabraid 7/32 in. in 250 Foot Coils
Alphatube 7/32 in. in 250 Foot Coils

The consignee's address is printed
on a small label which is pasted on
the side of the carton.

ALPHADUCT CO.
Jersey City, N. J.

**H. W. Kilkenny**

Perhaps you wonder why Kil keeps his hat on. The bald fact is—well, we promised not to tell.

Kil says:

For Speedy Work— Use DURADUCT

Your men can work faster out on the job if they use DURADUCT, because

- it is easy to place it in position on account of the small outside diameter.
- it is easy to fish with its Roller-Bearing Wireway.
- it is easy to cut and makes a clean end, due to its Single Wall.

Altogether, it's a pleasure for a workman to do a wiring job with DURADUCT.

Tubular Woven Fabric Co.

Pawtucket, R. I.

National Association of Electrical Contractors and Dealers

Officers

NATIONAL CHAIRMAN, James R. Strong,
526 W. 34th Street, New York City.
GENERAL COUNSEL, Franz Neilson
New York City.

SECRETARY AND TREASURER, Farquson Johnson,
15 West 37th Street, New York City
SPECIAL REPRESENTATIVE, Laurence W. Davis
15 West 37th Street, New York City

Executive Committeemen

ATLANTIC DIVISION

W. Creighton Peet,
70 East 45th Street,
New York City.

A. J. Hixon
246 Summer Street,
Boston, Mass.

P. H. Jaehnig,
109 Bank Street,
Newark, N. J.

G. M. Chapman,
43 E. Main Street,
Waterbury, Conn.

J. F. Buchanan,
1719 Chestnut Street,
Philadelphia, Pa.

H. P. Foley,
806 12th St., N. W.,
Washington, D. C.

CENTRAL DIVISION

G. M. Sanborn,
309 N. Illinois Street,
Indianapolis, Ind.

J. A. Fowler,
10 S. Second Street,
Memphis, Tenn.

J. E. Sweeney,
303-305 W. 4th Street,
Waterloo, Iowa.

A. Penn Denton,
17th and Oak Streets,
Kansas City, Mo.

Robley S. Stearnes,
336 Camp Street,
New Orleans, La.

A. L. Abbott,
182 E. 6th Street,
St. Paul, Minn.

CANADIAN DIVISION

R. A. L. Gray,
85 York Street,
Toronto

C. H. E. Williams
509 Richard Street,
Vancouver

L. G. Ross,
1305 Tower Ave.,
Superior, Wis.

PACIFIC DIVISION

E. H. Eardley,
54 Exchange Place,
Salt Lake City, Utah

Jas. R. Strong,
526 W. 34th Street,
New York City

Executive Committeemen at Large

L. S. Lamont,
9 So. Clinton Street,
Chicago, Ill.

Past Presidents of the National Electrical Contractors' Association

Charles L. Eidlitz-----1901-1903
Ernest McCleary-----1903-1905
James R. Strong-----1905-1908

Gerry M. Sanborn-----1908-1910
*Marshall L. Barnes-----1910-1912
Ernest Freeman-----1912-1914
*Deceased.

John R. Galloway-----1914-1916
Robley S. Stearnes-----1916-1918
W. Creighton Peet-----1918-1920

COMMITTEE CHAIRMEN

ARCHITECTS

R. A. L. Gray
85 York St., Toronto, Can.

CENTRAL STATIONS

A. J. Hixon
246 Summer Street Boston, Mass.

CODE

A. Penn Denton
17th and Oak Sts., Kansas City, Mo.

CONVENTIONS AND MEETINGS

Jas. R. Strong
526 W. 34th St., New York City

COST DATA

A. L. Abbott
174 E. 6th Street, St. Paul, Minn.

CREDIT AND ACCOUNTING

J. E. Sweeney
303-305 West 4th St., Waterloo, Iowa

ENGINEERS

E. H. Eardley
54 Exchange Pl., Salt Lake City, Utah

HOUSEWIRING

J. F. Buchanan
1719 Chestnut St., Philadelphia, Pa.

JOBBERS

W. Creighton Peet
70 E. 45th Street, New York City

LEGISLATION

H. P. Foley
806 12th St., N.W., Washington, D.C.

LIABILITY INSURANCE

J. A. Fowler
10 S. Second Street, Memphis, Tenn.

MANUFACTURERS

G. M. Sanborn
309 N. Illinois St., Indianapolis, Ind.

MEMBERSHIP

G. M. Chapman
43 E. Main Street, Waterbury, Conn.

MERCHANDISING AND INDUSTRIAL DEVELOPMENT

L. H. Lamont
9 So. Clinton St., Chicago, Ill.

PUBLICATION

Paul H. Jaehnig
109 Bank Street, Newark, N. J.

STANDARDIZATION

L. G. Ross
1305 Tower Ave., Superior, Wis.

UNIVERSAL DATA AND SALES BOOK

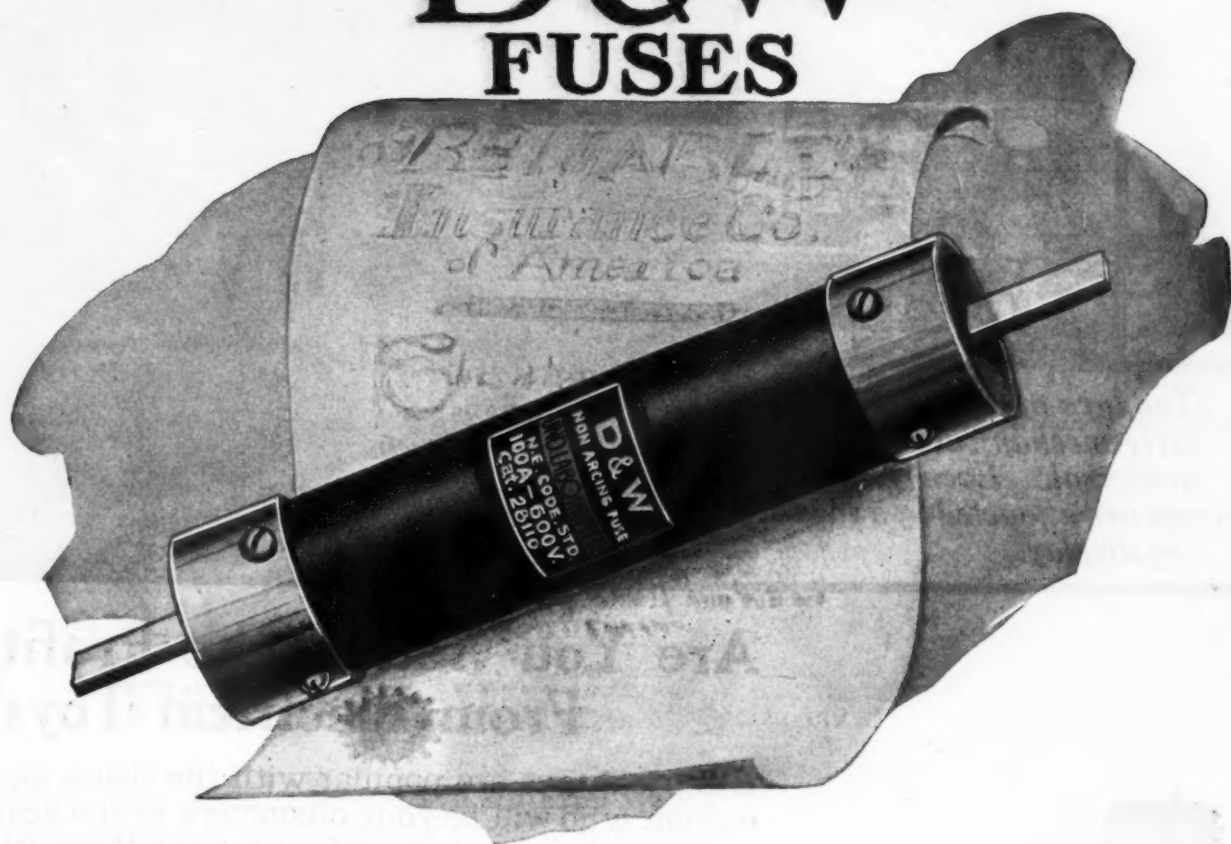
J. A. Fowler
10 S. Second Street, Memphis, Tenn.

U. S. CHAMBER OF COMMERCE

Robley S. Stearnes
336 Camp Street, New Orleans, La.

ANNUAL CONVENTION, CINCINNATI, O., OCTOBER 11, 1922. EXECUTIVE COMMITTEE MEETING, OCTOBER 9, 1922

D & W FUSES



Electrical Insurance

You wouldn't insure your plant in a company of doubtful reputation—nor should you attempt to insure the safety of your electric lines with fuses of uncertain worth.

D & W Renewable and Standard Fuses installed on your lines are a positive insurance against damages resulting from short circuit and overloads. They are designed by engineers who are pioneers in the fuse field.

On lines where the percentage of blow-outs is high D & W Renewable

Fuses are best in the long run, but on ordinary lines D & W Standard Fuses of low first cost meet all requirements.

Where location of fuses permits of visual inspection, indicating fuses save time and trouble in locating blown circuits.

Study your circuits and determine which type of fuse will reduce your fuse maintenance. Use D & W Fuses throughout and enjoy real protection.

A bulletin fully describing these fuses will be sent on request



Fuse Division
of General Electric Company
Bridgeport Connecticut

DWF-41



The lure of toys—particularly mechanical ones—is universal. Even grown-ups are attracted by a good toy display.



Are You Getting the Profits From Electrical Toys?



G-E Wayne Toy Transformer—50 Watt



G-E Wayne Toy Transformer—100 Watt

Electrical toys are popular with the rising generation who will be your customers in the years to come. Are you making friends with these little men and women now?

Any one under sixteen years of age—and many older—will tell you that toys have as great an attraction in summer as in winter. They are a year 'round sales possibility.

The G-E Wayne Toy Transformer should be sold with every electrical toy that goes to a wired home. It should also be sold to every present toy-owner who has been using up dry-batteries operating his railroad system or other motored playthings.

Why not put on a drive to sell toy transformers now? You might arouse interest by offering a prize for the best outdoor railway system—of course you would sell the material to make the outfit and the transformer to run it.

Here is business to fill in the dull spots of the year. Isn't it worth going after?

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

33A-111



*Buildings Built in the Spring
are Wired in Summer and Fall*

"Electrify America"— This Means Wire

Wire sales should be high in summer when most buildings are reaching the stage of construction where the electricians are called in. The importance of quality wire is too well known to electrical men to need emphasis.

G-E Red Core "better than code" wire is backed by over a quarter-century of manufacturing experience and its quality is maintained by careful inspection and exhaustive tests.

G-E wires and cables are available in sizes and types for every class of electrical work. Be sure of the quality of this part of your job by using G-E wire.

Whether you sell or use a few hundred or a few million feet—you can be sure of the quality of every foot.

*Keep
Summer
Sales
Up*

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

37-38

IN 1915 the Insurance Committee of the National Association of Electrical Contractors and Dealers investigated and recommended to their membership the plan of Insurance at Cost as conducted by Lynton T. Block & Co., of St. Louis.

Now in 1921, after six years of experience in dealing with this well known insurance organization, this same committee has expressed its continued unqualified satisfaction in the resolution contained on this page.

This resolution is therefore presented in this form for the benefit and information of the membership at large.

SIX YEARS OF SATISFACTION 1915-1921

SIX YEARS of satisfactory dealings with Lynton T. Block & Co., Underwriters, of St. Louis, has prompted your Insurance Committee again to go on record as endorsing their plan of insurance, with the attendant saving in money to our members.

Every Insurance Policy placed with this concern increases its ability to serve you better, both in the lowered rates it has influenced and the yearly saving it accomplishes. If the bulk of our members would avail themselves of this tangible advantage of membership, the saving made possible by the action of your Committee would probably total **Fifty Thousand Dollars Every Year.** Volume of business will do this. Your Insurance Committee has done its part; you should do yours and not only save money for yourself, but help your fellow members to save this enormous aggregate.

EVERY promise made by this underwriting organization has been more than faithfully kept, and the advantages have from time to time been increased without any solicitation or additional obligation on the part of the Assured.

Insurance with them costs less than it did six years ago, the coverage is more complete, and the savings are increased wherever deserved. The individual experience of the individual risk is now taken into account in determining the savings.

Inquiry addressed to Lynton T. Block & Co., Underwriters, St. Louis, Mo., or to the Secretary of your Association will bring full particulars regarding Insurance at Cost.

THE RESOLUTION SPEAKS FOR ITSELF—

RESOLUTION

Recognizing the insurance problems confronting this organization, and for the purpose of procuring the best indemnity at the lowest cost, the Executive Committee of this Association, after a careful and thorough investigation by its Insurance Committee in 1915, endorsed the plan of "Insurance at Cost," as conducted by Lynton T. Block & Co., Underwriters, of St. Louis, Mo., through their several Insurance organizations, and recommended to the members of this Association that they avail themselves of the saving in cost and the high character of service afforded.

WHEREAS, a large proportion of the members of this Association have for the past six years, carried their insurance through Lynton T. Block & Co., and found the saving in money to be substantial and the service to be highly satisfactory, and

WHEREAS, the Executive Committee deems these insurance arrangements to be among the important benefits which have been provided for members of this Association;

NOW, THEREFORE, BE IT RESOLVED, That the Executive Committee ratify its former endorsement of the Insurance and Service afforded by Lynton T. Block & Co. and urge upon those members not now taking advantage of it to lend their cooperation in this respect and communicate with the St. Louis Office of Lynton T. Block & Co. in matters pertaining to Fire, Casualty and Workmen's Compensation Insurance, with a view to adding momentum to this movement and securing for themselves the benefits which are made available for them.

BE IT FURTHER RESOLVED, That the Insurance Committee of the N. A. E. C. & D. finds the affairs of the various Insurance organizations of Lynton T. Block & Co. to be administered honestly and skillfully; financially sound and worthy of confidence; that each such organization has ample assets for the protection of its Policy Holders, being backed in each case by Assets in excess of \$2,000,000, which serves as a direct guarantee for the payment of losses and the elimination of any assessment liability whatsoever.

The Insurance Organizations herein referred to are:—

Employers Indemnity Corporation,	St. Louis, Mo.
Utilities Indemnity Exchange,	St. Louis, Mo.
Utilities Fire Exchange,	Kansas City, Mo.
Exchange Mutual Indemnity Insurance Co.,	Buffalo, N. Y.

(Signed) J. A. Fowler, Chairman Insurance Committee,
National Ass'n Electrical Contractors & Dealers.

THE RESOLUTION

Whereas, There is need of words to designate our business and activities; and

Whereas, It is proper that we should deliberately add to our vocabulary such properly derived words as are required; now therefore, be it

Resolved, That the following words be adopted as recognized by us with the meanings attached:

NATIONAL ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

(Trade Mark)

Official Journal of the

National Association of Electrical Contractors and Dealers

Publication Office: 11 Liberty St., Utica, N. Y.

Editorial and Business Offices: 15 West 37th St., New York City

THE NEW WORDS

Electragy—Name of the trade or business of Electrical Contractor-Dealer.

Electragist—A person conducting such a business.

Electragician—A person working at the business.

Electragize—A verb—to work at the business—or to provide electrical equipment.

Electragic—An adjective—relating to the business.

Electragian.

Electragial.

Volume 21

AUGUST, 1922

Number 10

"Electragist" Now Registered Trademark

A great deal of interest has been displayed by members of the National Association of Electrical Contractors and Dealers in the new word *electragist*, and many are the enquiries that have come to Headquarters asking for information concerning it.

Immediately following the adoption of the new words at the Buffalo Convention last year, steps were taken by the counsel of the National Association to procure registration in the United States patent office for the word *electragist*. It was deemed advisable to concentrate for the present on registering this one word in order to secure the monopolistic right of members to use it.

The trademark has just been granted and arrangements are now being made to give each individual member of the National Association a license to make use of the new word in his business as a trademark.

Members will be pleased to learn that the registration of the new word has been accomplished, but as the counsel points out, this will have little value unless each individual member does his duty in convincing the public that an *electragist* is an active member of the National Association in good standing who renders superior service in the installation and merchandising of things electrical.

The public must be brought to realize that an *electragist* stands apart from a nonmember of the organization—a mere electrician, a bellhanger or a curbstoner. In any transaction where the use of electricity for light, heat or power is employed the public must be made to see that in dealing with an *electragist* there is an assurance of satisfaction and absolute safety.

In such circumstances the membership will be able to control its trademark to prevent its use by others. The ultimate value of this monopolistic right depends upon the meaning which the members give to it in the eyes of the world. Quality, service and safety should lead to an assurance of comfort, convenience and satisfaction in the use of electricity. The public soon will learn this if every authorized *electragist* will live up to the true meaning of his new title.

Plan for the Future

In these warm days—play days—vacation days—it is not strange nor is it unusual to forget to change the calendar, nor is it really reprehensible. Getting out in the fresh air is one of the greatest boons we are granted.

Still the calendar is there—it is made to be turned and if we do turn it, it will remind us of the time to come when there will be no less pleasure to be had, but that the coming time is the more earnest work time, the time for greater effort. The indoor season will be upon us before we know it and long before it comes we must prepare for its exigencies.

Christmas is coming, *Electragists*! Have you begun to put your business house in order for it? September is none too early to plan for it and to purchase. Get your stock up to grade in every sense. Begin negotiations for preferred advertising space.

There is, as everybody knows, a more than usual emphatic campaign under way to induce early Christmas shopping. Are you doing your share toward forwarding the movement? Are you ready for action in it, and are you keeping to the fore in your mind the fact that there is a marked tendency toward increased buying at present? Are you considering the result of that momentum?

Take electrical household utilities alone as a big item—get busy on your individual campaign for those—be a worthy competitor within your own industry and make your record for Christmas sales something to be remembered by other industries that compete for holiday trade.

Electrify to Solve the Problem

The high living costs for the American workman have brought about an uncontrovertable condition which must be met, recognized and discussed again and again until its amelioration occurs. An opinion lately voiced by an authority states that if a workman in this country is to compete in the same market, and it costs him three times as much to live as it does those of foreign lands, he must produce three times as much.

Naturally, as has long been known, this can be done only by having the necessary machinery which will multiply the work of his hands. Besides the uncountable machines now in use there must and will be invented thousands of others. Every machine requires power, and electrical power being the super power, is the key to industrial expansion of the United States.

What a ground floor opportunity for betterment of condition as well as for financial increase there is for those now in all branches of the electrical industry! And for those not in it there is an equally favorable possibility.

Beginning with the farmer—if he could only see individually the great chance for development at his very door, and if he would only electrically educate himself accordingly—that is in the making and use of power—his advantages would accrue as enormously as they did academically by his passage from the old time little country school to the world famous colleges of Yale, Princeton or Harvard. The opportunity for benefit is not for just a few—it is a matter of personal volition for all.

The question has been asked until it has become hackneyed: "What makes the world go round?" and one of the many ambiguous answers is that it may or may not be electricity. But there is no ambiguity or uncertainty in the statement that each man, woman or child is positively dependent on applied electricity in some form for every comfort that is required.

It must never be forgotten that at present electrical science is almost in its babyhood and its evolution will unfold undreamed of marvels.

Following is an interesting illustration of the fight made against both a certain form of development and evolution.

In 1816 a New England newspaper contended that gas as an illuminant was pernicious for at least five reasons:

1. Artificial illumination was an attempt to interfere with the divine scheme of things which had ordained that it should be dark at night.
2. Emanations of illuminating gas were injurious. Lighted streets would incline people to remain late out of doors, leading to increase of ailments by colds.
3. Fear of darkness would vanish, and drunkenness and depravity would increase.
4. Horses would be frightened and thieves emboldened.
5. If streets were illuminated every night, such constant illumination would rob festive occasions of their charm.

We all know the benefits which gas placed within reach and how it eventually gave place to electricity as a better medium of lighting; and while we cannot even guess the result, with but half an eye and with ear to the ground it can be seen and heard that, to paraphrase a current popular saying, the next hundred years will be the easiest, and they will be so because of electricity.

Let us all get together to help electrify the world!

No Sales Below Cost

The Chairmen of the Federal Trade Commission in a recent speech said in part: "Because I believe that selling below cost is an unfair method of competition, I believe that a group agreement not to practice this method of doing business is a lawful agreement. It is, it seems to me, as much a matter of internal concern and action in a trade association as is misbranding or commercial bribery."

This is true talk which ought to make the price cutters wince a bit. The average man who cuts prices does not consider himself dishonest perhaps, and he might deeply resent an accusation of bribery. Yet is it not as Mr. Gaskill said, tantamount to commercial bribery to sell goods at a below cost figure?

It is not believed to be general, but there are cases of course where such selling is done out of crass ignorance owing to a lack of proper methods of accounting. But this is inexcusable for it is so easy to have the seller's cost definitely arrived at by an accredited system which will show at all times an exact basis for figuring profit.

Among a certain type of business men there is unfortunately an erroneous opinion that sales below cost means stabilization and a uniformity of price which acts as a restraint upon competition.

Market fluctuations are bound to cause a variation of cost, and selling prices will vary accordingly and a no-sales-below-cost principle in no way hampers such legitimate variation.

Because of this variation which will occur as long as barter and trade exist there is the utmost urgency to establish and maintain a cost accounting system in every business, large or small, which will ensure an accuracy of financial cost value of his stock to the individual seller. An up to the minute analysis of facts and figures is essential to proper business conduct and is one of the best assets.

Think, Electragists! Have you that asset and is it applied in your effort to maintain fair as well as profitable competition?

Additional Working Capital

What is it that the average electrical contractor-dealer needs more than anything else to help him along toward the goal of success in business? H. A. Lewis, manager of *Electrical Merchandising*, says it is additional working capital, and then he proceeds to explain why.

During the war period there was a tremendous public demand for household labor saving appliances. Contractors invested their working capital in merchandise to supply the demand. Rising prices afforded pleasing profits. But when the bubble broke in the summer of 1920 and depreciation set in, it was found that merchandise and accounts receivable were about all that the average electragist had to show for his previous gains.

Mr. Lewis says that general economic conditions and not the merchandising end of the business is to blame for the present condition of contractor-dealers, and that what they need now is refinancing. He believes that there are twenty-five hundred electragists that need on an average of ten thousand dollars each of additional capital—which is available if the proper means is sought to procure it.

The most logical plan is to secure the financial backing of the local capitalistic group, one of which Mr. Lewis avers is located in every community. Every town, he says, has its revolving pool of restless money seeking local investment. He cites the fact that the automobile industry was financed in much the same manner and now is thriving in every locality.

Mr. Lewis suggests that the manufacturer and the supply jobber be called upon to pave the way for the local financier to invest in the contractor-dealer business. With such interests interceding for the local enterprise, local capital will be attracted more readily, and a community interest will be effected which will profit everybody concerned.

As is pointed out, inadequate working capital is one of the chief causes of business troubles. Let us hope that some such plan as Mr. Lewis suggests can be generally adopted

in the contractor-dealer branch of the electrical industry. Doubtless the contractor-dealer should have additional working capital. Efforts should be made to furnish it.

Watch Out for Leaks

A deep thinking member of the National Association from one of the southern states sends to the NATIONAL ELECTRICIAN his idea of how some of the losses in the contractor-dealer business can be prevented.

His plan calls for the stopping of leaks in the business, for wherever there is a leak some of the profits are sure to flow through and be lost beyond recovery.

A few of the many commonly known leaks are pointed out, such as the wage leak—certain tasks performed by high priced productive labor which should be done in spare time by non productive employees; inefficient office management in which valuable time is lost; unnecessary office records

and supplies that are not used, but waste time and money; gas, oil and automobile repair leaks; the loss of screws, bolts, and small items not charged; and worst of all, leakage from inattentive clerks and careless workmen.

Many additional leaks are cited that easily could be eliminated. For instance, tying up surplus capital in past due accounts receivable; accumulating materials and tools that are seldom if ever used; stocking up on slow moving merchandise; and over buying all around.

But as our correspondent points out, a well regulated business with the whole organization pushing and saving, will allow no leaks in the money bag. There will be ample funds for materials; for salaries and wages; for all expenses and overhead; and then after paying dividends there will remain a surplus in the money bag, which is so essential to every business.

An old saw says that a dollar saved is a dollar earned. Save the dollars by preventing the leaks, and the net earnings will show in the money bag.

A Record Installation and a Record of the Labor Costs

BY CAMPBELL HIGGINS

Actual Costs Experienced by Hatzel & Buehler, Inc., Covering Complete Electrical Installation in Elizabeth Plant of Willys Corporation, New Property of W. C. Durant

[NOTE—Through the courtesy of Hatzel & Buehler, Inc., 373 Fourth Avenue, New York City, we are in a position to publish the following costs taken directly from the note book of their Field Engineer in charge of this large and interesting project.

Owing to the fact that Mr. Higgins arranged his notes in a loose leaf book and with no thought of publication, there are a number of abbreviations used but we are confident that any one familiar with electrical work will readily understand them.

It is interesting to note that the costs presented in this discussion are arrived at by using the Job Record Book published by the Estimators' Association of Greater New York and a study of this book will be helpful in thoroughly understanding the significance and arrangement of these figures.

As Mr. Higgins' analysis was written purely for the information and use of the firm of Hatzel & Buehler, he wishes us to point out that the sum of all the individual labor items when added together is the actual payroll expended on the job. However, in checking this statement the reader will observe that in some cases more than one entry is made under an individual item number, as for instance, item number 10 where the first figure represents the entire cost of this sub-division of the work the three remaining figures under item number 10 apply to sub-divisions of the first and are included in same. The schedule is worthy of close study by electricians. —The Editor.]

To understand properly the following discussion of the electrical installation on this job, a glance at the conditions surrounding the preparation of the estimate will be helpful.

This unusually large plant, which was already under construction, was to be completed in five or six months' time from date of contract.

The plans upon which the estimate was based were largely diagrammatic and general, and were to be redrawn in the field.

A complete field organization would be required capable of laying out all work, complete superintendence of labor as well as ordering and following up the deliveries of all material under adverse conditions, stock keeping, time keeping, etc.

Observations made at the plant indicated that the work was being rushed to an unprecedented extent, and that the field of operations would soon be limited only by the size of the entire plant.

However, the conditions under which the work was actually carried out were widely different from those above enumerated.

Instead of starting our work in May and completing in the following September or October, the work was begun in May and was not completed (including some important additions) until November of the following year. So that the life of the contract was 18 months instead of 6 months.

While the concrete buildings were erected and our work nearly completed

at the end of six months, using a gang of about sixty men (showing that the forecast was approximately correct) the steel structure or main shop was not erected until our work in the concrete buildings was nearing completion, and when erected, our work was slowed down at the owner's request on account of a change of policy so that for many months we worked with a force of ten men and one superintendent.

As a result of this change alone, we experienced two noticeable results: (a) the productive labor was accomplished for considerably less than the amount estimated, while (b) the non-productive labor, was found to be greatly in excess of the amount estimated, although the total labor expended was close to and less than the amount estimated.

The complete estimate, including the "take off," the pricing of all labor and nearly all the pricing of material was completed in five days' time by one individual. The labor estimate being divided into two parts, productive labor figured from units derived from previous experience, and non-productive labor figured as a percentage of the above and also checked to see if the amount allowed would cover the cost of the necessary force for the required time.

The following figures are the actual amounts allowed for the various items, and the total is the correct amount for the entire job, being the sum of all the labor items appearing in priced estimates, and a very conservative allowance for the labor in the small amount of work priced on the unit price basis:

Estimated	Productive	Non-Productive
Original contract.....	\$52,981.00	\$ 7,937.00
No. 6 Power House Work.....	8,939.00	1,744.00
No. 32 D. C. Work, power.....	2,544.00	506.00
No. 42 Watchman's clock system.....	4,971.00	998.00
No. 1 to No. 109 except 6-32-42.....	5,356.00	707.00
Units from final count.....	1,036.00 plus	103.00
Totals.....	\$75,827.00	\$11,995.00
Total estimated labor as above.....		\$87,822.00

Due to the fact that the items marked (*) were priced for the most part after the slowing down of the construction work and because the owners were unwilling to alter the terms of the contract, though willing to a limited extent to reimburse us for the increased cost in overhead, these items carry a part of the non-productive labor in the column headed "Productive." We have used the figures as they were accepted, though for the following comparison a slight offset should be made.

The figures given in the following summary are the actual amounts expended in completing each major branch of the work, and are obtained directly from the cost record book following the divisions outlined therein:

	Labor	% of Product	% of Total Labor
ROUGHING			
Conduit—Outlets—Boxes.....	\$41,444.00	.642	.478
WIRING			
Pulling all wires and cables.....	8,660.00	.134	.10
APPARATUS			
Switch board—Panels—cut outs—busses, etc.....	8,156.00	.127	.094
FINISHING			
Switches, Receptacles, Fixtures, Watchman's clock.....	5,812.00	.09	.067
Unassigned.....	464.00	.007	.005
Total Productive Labor.....	\$64,536.00	1.00%	
Total Non-productive Labor.....	\$20,568.00	.3186	.237
Temp. light & power and replacements (items 7&8).....	\$ 1,575.00	.024	.019
Total Labor.....	\$86,679.00		1.00%
Total of all Labor Expended.....	\$86,679.00		
Less temporary Light & Power (not included in estimate).....		1,575.00	
Net Total of Labor Expended.....	\$85,104.00		
Net Total of Labor Estimated.....	\$87,822.00		
Credit Balance.....	\$ 2,718.00		

Although it is obviously impossible to make very accurate comparisons between the total labor estimated and expended on an operation of this size and kind due to the fact that a number of modifications are always made, it is nevertheless true in this case that the work was completed with the net saving in labor in the amount of \$2,718. It is interesting to note that this saving was effected in the face of an increased wage scale of one dollar per day for both

wiremen and helpers after the third month of the work. This net increase from the date of taking effect to the end of the operation was recorded, and amounted to \$7,500 approximately (the exact figure is not at hand) and could in no way be anticipated as the prevailing wage scale at the time of estimating was considered to be a high point.

Therefore, while it is true that some items were omitted for which no credit in labor has been made, it is equally true that such items do not approach the amount of this wage increase.

In the interest of a clear understanding of the unit labor costs given on pages 22 to 25, the physical conditions surrounding the work have been briefly described under each item as being the most convenient place for reference.

In addition to these notes it would seem proper to include a brief description of the general conditions affecting labor during the life of the contract, since these conditions are reflected in the labor units, and will have to be considered in future work.

1. A lowered efficiency due to war conditions was noticeable during the first three or four months, and resulted in an increased cost on the small conduit in the concrete buildings.

It is probable that this caused only a very slight increase, and is obviously subject to discount on future work.

2. A lowered output due to the location of this unusually large job in a small town, and one where there was a local union sufficiently well established to prevent the use of outside labor. This condition of affairs resulted in a serious restriction during the time the force on the work was being increased, and was noticeably less from the time we first made a layoff on August 1st.

The units which were increased due to this cause are those covering the small conduit in the concrete buildings.

We are of the opinion that our costs were very materially increased on account of this condition which we anticipated to a great extent in estimating the work, and which cannot be discounted on work located in similar surroundings, unless the wage scale is correspondingly lower than ordinarily experienced.

3. Another important cause of increased cost on the small conduit installed on the ceilings of the concrete buildings, was the lack of any suitable and adequate mechanical means of drilling for the lead anchors used to support the ceiling outlets (the pipe straps being secured by means of screws in wood inserts). About half the outlets were secured to bolts set in the forms, but the other half (in the area where the forms had been poured) the holes were drilled almost entirely by hand.



Finished Work. Note That Inserts on Each Side of Outlet Box Are of Wood and Inserts Throughout Ceilings Are of Metal

This was because the portable air compressor arrived at the job too late and was found to be impractical due to the wide field of operations, its weight, the condition of the floors, and the lack of any elevators in operation at the time.

While it is safe to say that our costs were considerably increased on this account on this particular job, it is highly probable that the same cause would have been much more serious had it not been for the wood inserts. However, since the inserts were clearly shown on the estimating plans and their use counted on, the lack of speed on the remaining drilling was a net loss, as far as the units are concerned.

This experience would seem to come under that class of contingency which makes its appearance on every job and causes us to be very slow to figure new work on the basis of the lowest figures obtained in the past on the same class of construction.

4. In spite of the above difficulties the productive labor for the entire job was more than ten thousand dollars less than estimated, due to a number of well defined causes, but principally because all during the last year of work the conditions of the labor market were the exact reverse of the conditions experienced during the first few months.

5. Another very important factor in the lowering of labor costs was the splendid mechanical equipment provided for the work, among the more important items being:

Thirty rolling scaffolds for work on the ceilings.
Power driven hack saw.
Power driven pipe threaders, all sizes.
Air compressor and drilling outfits, which proved of the greatest value on the larger holes.
Well equipped blacksmith shop where much standardized work was done.
Excellent storage and handling facilities including hand trucks.
And lastly, in the case of the heavy pulling on extremely long cables, the use of a powerful electric truck. (See notes under items.)

6. The last item to be mentioned in this connection is the engineering and laying out done in the field where all plans were drawn and the work shown in the exact way it was to be installed. Working on the job it was possible to be very familiar with all the physical conditions and a high degree of standardization was attained.

7. The last point to be considered in connection with using the above costs on future work is the proper allowance for non-productive labor, which is entirely correct for this particular job and which, owing to the fact that those performing work of this class at no time were engaged in work with the tools, was capable of very accurate cost keeping.

From the foregoing it will be seen that the total non-productive labor expended is the sum of \$20,568 including the salary of field engineer, which was not included in the estimate, and that the amount estimated in all is \$11,995 so that in other words, the non-productive labor expressed as a percentage of the productive (the usual way in making up the estimate) was estimated to be .158%

actually was .3185%



Portable Air Compressor Effective for Large Holes

From studies made in the field it seems safe to say that, had the work been carried out as planned in five months' time, the percentage figured would have been approximately correct, for the field office force would not have been increased and was in fact prepared with this particular task in view. The field force was retained during the entire five months which should have seen the job nearing completion, and was only held because the delivery of the steel for the main shop was promised weekly though not fulfilled for about two months, with the result that when the estimated non-productive labor was spent the estimated productive labor was only half expended and an almost complete shutdown went into effect shortly after.

In considering new work it would seem proper to take 15% as a minimum where the conditions are assured to be good with respect to speed and the size of the operations, that is the proportion of space sure to be available at one time.

It would seem proper to place the upper limit for non-productive labor at not over 32% for a large operation.

It would further seem safe to say that where there is any likelihood of the work being dragged out at the end of the job, or of delays due to others being experienced during the life of the job, that the percentage allowed should be nearer 30% than 15%.

Scope of Work

3 Assembly Buildings 1200 x 120, 4 Floors..	585,000
1 Stock Building 380 x 320, 5 Floors.....	608,000
1 Test Building 240 x 120, 3 Floors.....	86,400
1 Tunnel, 1050 x 10	10,500
8 Shop Basements each 240 x 40.....	76,800

1,366,700

Deduct for light courts..... 51,200

Total assembly and storage square feet... 1,315,500

1 Main shop—9 double bays—main floor	
900 x 240	216,000
9 Upper bays ea. 240 x 40.....	86,400
1 Transfer bay 1010 x 40	40,400
1 Shipping and receiving bay, 900 x 180...	162,000

Total manufacturing and shipping..... 504,800

1 Power House 140 x 80 2 F }	
2—2000 KVA Turbo gen. }	
1—3000 KVA Turbo gen. }	24,400
1—75' oil switch board. }	

Total Square Feet Area..... 1,844,200

8100 Lighting outlets mostly R. L. M.	
560 Outlets with Cooper Hewitts.	
775 30 amp. toggle switches.	
340 Push switches.	
150 Receptacles and plates.	

9925 Total.

41 Miles of Branch Circuit Conduit.

15 Miles of Main Feeder Conduit.

Assembly buildings, etc., of reinforced concrete flat slabs without beams. $\frac{3}{4}$ -inch threaded metal inserts 3 feet 4 inches on centers throughout. Wood blocks at center of bays in form of square. Ceiling height generally 11 feet. All work exposed.

Shop bays, etc., of structural steel alternating 60 feet crane bays and two story manufacturing bays.

Time of job, April 1920 to December 1921.
Rate to August 1, 1920, Journeymen \$8.00; Helpers, \$4.00.

Rate after August 1, 1920, Journeymen, \$9.00; Helpers, \$5.00.

The costs worked out below are as nearly correct as they can be made considering the prolonged life and size of the job. The sum of the items checks with the actual payroll, but owing to the difficulty of obtaining the net quantities of certain classes of material, in several cases sub-prices have been inserted which were worked out from data obtained during the progress of the work and where such prices are given they may be considered more accurate than the over-all price for the particular item.

NON-PRODUCTIVE

1. Erecting Office, stock room and 30 rolling platforms. Not incl. W. M. Bill	\$ 897.00	
2. Clerical work, 2 men, 2 boys	\$ 3,130.00	
4. Laying out work, sub. foremen up to January 1, 1921	4,596.00	
5. General supervision. Superintendent and Field Engineer	9,891.00	
6. Handling material	2,054.00	
7. Tearing out and replacing work. (This item not complete)	446.00	
8. Temporary light and power	1,129.00	
Total Non-Productive items	\$20,568.00	
Total for items 7 & 8	1,575.00	

ITEM. UNIT

10. Installing $\frac{1}{2}$ " & $\frac{3}{4}$ " entire job. 73000 feet $\frac{1}{2}$ " galv. 35550 feet $\frac{3}{4}$ " galv. 67850 feet $\frac{1}{2}$ " lor. 14500 feet $\frac{3}{4}$ " lor.		
190900 feet all systems	\$24,103	\$.1262
10. Installing $\frac{1}{2}$ " & $\frac{3}{4}$ " Concrete bldgs. incl. changes 73000 feet $\frac{1}{2}$ " galv. 35550 feet $\frac{3}{4}$ " galv.	\$15,505	.1428
10. Installing $\frac{1}{2}$ " & $\frac{3}{4}$ " Concrete bldgs. straight new work with changes deducted. 72000 feet $\frac{1}{2}$ " galv. 35000 feet $\frac{3}{4}$ " galv.		
107000 feet 7070 outlets, lighting 15.1 feet average run approx. 10 feet counting junctions 70% at lower wage scale.	\$13,640	.1275
Estimated 10910 feet at \$.1025		
10. First 25500 feet standard layout on ceiling cost \$.119.		
Shop Work. 10. Installing $\frac{1}{2}$ " & $\frac{3}{4}$ " in Shop Trans Bay, Rec. Bay etc. about $\frac{1}{4}$ concealed bal. exposed. 67850 feet $\frac{1}{2}$ " lor.) Condulets 14500 feet $\frac{3}{4}$ " lor.) 82350 feet 75% high up on steel.	\$ 8,598.	.1044
Estimated 70000 feet plus at \$.142		
11. Installing 1" & $\frac{1}{4}$ " Concrete build. incl. a number of changes 25400 feet 1" } 1600 feet $\frac{1}{4}$ " } 27,000 feet	\$ 4,190	.155
11. The above figure includes costs which do not properly belong in the cost of running the conduit, and therefore the unit is too high. The following figures which were determined on the job before changes were made, are accurate: Installing 1" & $\frac{1}{4}$ " home runs 23450 feet 1" } 660 feet $\frac{1}{4}$ " } 24110'	\$ 3,138	.1302
Estimated unit \$.15		
11. Installing 1" & $\frac{1}{4}$ " in shop on hangers suspended from concrete floor of balcony. 5000 feet 1" } 3000 feet $\frac{1}{4}$ " } 8000'	\$ 848	.106
Long straight runs with boxes app. 20 feet.		
12. Installing $\frac{1}{2}$ " & 2" Concrete Buildings. 10350 feet $\frac{1}{2}$ " long power lines 2360 feet 2" lighting feeders		
12710 feet	\$ 2,409	.19
Estimated unit \$.19		
FROM JOB RECORDS 7950 feet $\frac{1}{2}$ " long horizontal runs in single lines hung from $\frac{3}{4}$ " inserts		.12
2360 feet 2" Hor. Ave. 100 feet and up to fourth floor through sleeves and feeding 3 or 4 lighting panels		.40

12. Installing $\frac{1}{2}$ " & 2" in shop, etc. Mostly two conduits on same hangers hung from concrete floor of balcony. 3000 feet $\frac{1}{2}$ " Boxes 20 feet o.c. 8960 feet 2" 11960 feet	\$ 1,242	.104
13. Installing $\frac{1}{2}$ " & 3" All buildings. 5950 feet $\frac{1}{2}$ " 11750 feet 3" Runs up to 1300 feet all horizontal. Mostly on channel irons in truss and tunnel. Also P. House.		
17700 feet Total	\$ 5,700	.322
13. Installing 3" Conduit on channel iron hangers in tunnel. Three runs 1300 feet plus ea. Conduit within reach from floor, pull boxes 400 feet apart, two offsets. All horizontal, hangers not included. 3945 feet 3" conduit	\$ 859	.22
Installing 3" conduit from main switch bd. through Power House and tunnel to Stock R. with reduced and very efficient gang. Conduit runs with many angles and sets, so that work was of most difficult nature. 770 feet 3" conduit	\$ 223	.29
Cost of cutting and threading both ends, 40 nipples from 3" conduit each 15" long using power hack saw and hand Toledo.	\$ 91	2.29
Cost of drilling holes in concrete ceil. all holes within space of eight bays using air compressor and one team. 72 $\frac{3}{4}$ " holes ea. approx. $\frac{1}{2}$ " d. Estimated for 3" conduit, \$.30		.36
Cost of installing hangers for conduits in tunnels, of 4" channel each 3 feet plus long using threaded inserts. 100 hangers	\$ 81	.81
14. Installing $\frac{3}{4}$ " conduit in one straight horizontal run on pipe hangers in threaded inserts. 1100 feet $\frac{3}{4}$ " conduit	\$ 183	.16
20. Installing hangers. The cost of this work was generally included in the cost of the conduit except as noted under item No. 13 above. Forge work, making all kinds of hangers, etc., at forge and drill Making 100 hangers 3" ch. 4 holes each	\$ 1,541	.35
21. Setting panel boxes for lighting in all concrete bldgs. All boxes exposed on pilasters, with four expansions, holes drilled with air hammer. Com-		

pressor in same position for 4 or 5 boxes. 106 boxes	\$ 500	2.83
1456 Circuits	\$ 300	.21
22. Setting panel boxes for power in all concrete bldgs. Boxes about 2' square 4" deep set on T.C. part. 100 amp. 3 P. 31 two circuit } 6 three circuit }	\$ 138	3.73
Setting large secondary lighting boxes in Assem. and Shop. Each box 44" x 44" x 24" 6 built in T. C. wall	\$ 72	12.00
1 free standing on pipe supts.	\$ 27	27.00
Setting large pull boxes in Power House and E. R. Base. All boxes 12 gauge. Purchase price. 1 box 28"0" x 18" x 18" (4 side)	\$ 200	
1 box 15"0" x 20" x 10" (4 side)	\$ 90	
1 box 20"0" x 18" x 16" (2 side)	\$ 150	
1 box 32"0" x 34" x 20" (4 side)	\$ 435	
4 boxes installed	\$ 161	40.25
Setting seven boxes ea. 14" x 11" x 3 $\frac{1}{2}$ " inside of No. 2 above also setting and connecting seven auto. starters for blower motors on roof, under bad conditions. 7 outfits as above	\$ 140	20.00
24. Setting section switch boxes and power junction boxes, on ceiling of concrete buildings at long intervals. Each box mounted with a single $\frac{3}{4}$ " tap bolt to threaded insert. Principle cost involved being the location of the box and handling ladders. 74 switch boxes 18" x 12" x 6" 143 Junc. boxes 24" x 8" x 6"		
217 Total	\$ 250	1.20
40. Pulling No. 14 and 12 Duplex. All buildings. 292000 feet No. 14 Duplex 28000 feet No. 12 Duplex		
320000 feet Total	\$ 4,188	13.10
Estimated to cost \$10.00 per M.		
In the Concrete Bldgs. more than 230000 feet of duplex evenly divided between $\frac{1}{2}$ ", $\frac{3}{4}$ " & 1" where the 1" runs were very long, cost		13.50
In the shop and high bays more than 65000 feet of duplex, about half of which was pulled by climbing on the steel, cost		12.00
In concrete bldgs. the cost of pulling duplex above, includes the cost of a large part of the splicing and all tagging of ends at panel, so that no expense for testing was experienced.		



Job Office, the Author Standing at Board in Rear

41. Pulling No. 10, 8, 6 Single R.C. all buildings, all kinds of runs.
11000 feet No. 10 single.
6000 feet No. 8 single.
7000 feet No. 6 single.
24000 feet Total ----- \$ 190 7.90
Estimated to cost \$13.00 per M.

42. Pulling No. 5, 4, 3, 2, 1 Single R. C.
31000 feet No. 4 single. Long power runs.
13400 feet No. 2 single. Long power runs.
7600 feet No. 1 single. Long power runs.
52000 feet Total ----- \$ 636 12.23
Three wire runs in 1½" conduit on ceiling. Long single lines.
Estimated to cost \$19.00 per M.

43. Pulling No. 1/0, 2/0, 3/0, 4/0 R. C.
2000 feet No. 1/0 Long power runs.
15300 feet No. 2/0 Part used as neutral.
26700 feet No. 4/0 Long Power runs and light.
44000 feet Total ----- \$ 983 22.34
Mostly in horizontal runs, typical of a large plant. A considerable part of the 2/0 was used as the neutral leg of two 500000 c.m., and as that part was prorated the cost may be a little high.
Estimated to cost \$23.50 per M.

44. Pulling in 400000 c.m. V. C.
28040 feet No. 400000 ----- \$ 1,045 37.25
Mostly in horizontal runs with a maximum length of 1300 feet plus one way. Evenly divided between runs on low tunnel ceil. and runs in truss about twenty-five feet up. No splices included.
Estimated to cost \$38.00 per M.
Average price in tunnel, no splices ----- 22.00

45. Pulling in 500000 & 600000 c.m. R. C.
15000 feet No. 500000
600 feet No. 600000
15600 feet Total ----- \$ 544 34.90
Two or three long runs and the rest comparatively short. Horizontal.
Estimated to cost \$38.00 per M.

46. Pulling in 700000 & 1000000 c.m. R. C.
1760 feet No. 700000 c.m. pulled in one 2 wire run with one bend and two offsets.

Horizontal line with two pull boxes.		
1760 feet Total -----	\$ 40	23.00
180 feet No. 1000000 in 2 2-wire runs -----	\$ 23	128.00

NOTE—In all the costs tabulated under No. 44 and 45 also the 700000 c.m. and part of the 4/0 the pulling was done in general with the aid of a powerful electric truck and largely without the use of tackle except a snatch block used as a fair leader.

In all cases on pulling the costs recorded cover the cost of setting up reels and all preparations. No splicing nor connecting is included.

Splicing 700000 c.m. in boxes installed on ceiling.
4 splices made with sleeves }
6 connections to lugs } \$ 28 2.80

Splicing 400000 c. m. and 500000 c.m. including some connections to lugs ----- \$ 286 ---

Accurate costs kept on a number of the above splices at three locations show the following results, for splices made with sleeves:
a. difficult overhead conditions ----- ea. 3.00
b. fair to good conditions ----- ea. 2.00
Sweating 4 lugs on 1000000 c. m. ----- \$ 14 3.50

47. Pulling in No. 16 and No. 14 single for the Watchman's clock system, all buildings.
72000 feet No. 16 single.
8000 feet No. 14 single
10000 feet No. 16 duplex
90000 feet Total ----- \$ 410 3.55

The above cost includes the connections to 87 magneto stations.
This wire was pulled into all sizes of conduit from ½" to 1½".

58. Running No. 1/0 bare trolley wire; approx. 900 feet/bad conditions ----- \$ 87 96.00

59. Installing crane trolley, insulators and blocks on I beams already drilled.
700 Pine blocks 13" x 5" x 3" purchased with drilling for bolts and screws.
Price, each ----- \$.40 ea.
Each block having:



Pipe Cutter and Threaders

2-6" x ¾" bolt & nuts -----	.04 ea.
3-7" x ¾" lag screws -----	.04 ea.
3-4" porcelain spools -----	.35 ea.

700 blocks assembled and installed ----- \$ 186 .27
Material cost of each complete outfit was \$1.65.

- 70 and 71. Erecting and connecting main switch board, complete, total \$ 2,035 ---
(for details see items on last page.)

72. Setting and connecting lighting panel bds. and trims. (Tumbler switch type)
106 Panel boards ----- \$ 757 7.14
1456 Circuits (total) ----- \$ 757 .52

Setting and connecting secondary panels for lighting. Each consisting of single slate slab with 3-200 or 400 amp. 3 p. double throw back conn. sws.
7 Panels and trims ----- \$ 120 17.14
126 Connections 4/0 and 500000 c.m. ----- \$ 120 1.00

73. Setting and connecting power panels and trims (wall cabinets) 3 to 3 wire fuse panels. No switches.
37 Panels 2 cir. ea. ----- \$ 274 7.41
370 Lug conn. No. 4, 2, 1 & 4/0 \$ 274 .74

Setting and connecting primary power panels. 1-3 P. 400 A.
9 lugs ----- \$ 132 16.50
8 panels ----- \$ 132 1.83
72 lug conn. 4/0 & 400000 c.m. \$

Setting and connecting 100 amp. 3 p. safety sws. 8 feet up on T. C. wall.
11 switches (cranes) ----- \$ 42 3.82

74. Installing and connecting section sws. 3 P. S.T. unfused 100 amp. 440 V. in boxes widely distributed on ceiling.
74 switches ----- \$ 104 1.40
Installing D.C. Safety Sws. ----- \$ 248 ---

76. Installing and connecting plug and N.E.C. cutouts in main shop, for light and power, in very small boxes located on ceiling, under very bad conditions. Cutouts mostly 30 amp. plug type 3 P. none larger than 100 amps.
245 Cutouts (approximate) ----- \$ 888 3.62

78. Installing and connecting Main Line cutouts in all buildings. Mostly 400 amp. 3 P. with 3 500000 main and 6 4/0 branches.
\$ 210 ---

Setting only, heavy slate panels in boxes on ceiling, each panel having 1 600-amp. and 1 400-amp. 2 pole switches with fuses.
2 Panels ----- \$ 17.50 8.75

Setting and connecting polarity pwr. panels and compensators, in shop ----- \$ 190 ---

85. Connecting A.C. blower motors in P. H.
7 Motors—No. 4 wire ----- \$ 81 11.60



Preparing Conduits for Distribution and Erection



Power Driven Toledo

89. Wiring cranes complete (coal crane) 1	\$ 235	---
The above figures covers the cost of practically re-building the crane from an electrical standpoint.		
Milwaukee crane man states that his firm considers the cost of assembling and connecting the electrical work on a properly shipped crane should be....		
	\$ 75	75.00
90. Connecting transformer banks, 440 V. 3 Ph. to 110-220 V., each Trans. having 5 conn. including filling with oil.		
Transformers were placed on rails by others and all but two banks were placed at floor level. Two banks were mounted on exterior wall at second floor level.		
15 50 K. W. Transformers.		
12 100 K. W. Transformers.		
3 200 K. W. Transformers.		
30 Total Transformers	\$ 377	12.57
150 Total Connections	\$ 377	2.51
92. Installing main generator bus work, under engine room floor between 3 machines and sw. bd. including making up from bar copper and installing complete with pipe supts. and insulators. Also incl. conn. to 3 oil sws. and up to disconnects at board.		
2-2000 KVA 3 bars per leg		
1-3000 KVA 4 bars per leg mounted direct to beams with pipe supts. alternating.		
96 bus supports (11306-11336-11636).		
2300 feet 4" x 1/2" blts.	\$ 1,385	.602
Erecting main generator oil switches located on side of concrete gen. foundation with pipe supts. to floor.		
3 Oil switches	\$ 98.50	32.83
Connecting field wires 3 mach.	\$ 24	8.00
Connecting D.C. Exciters		
1-25 K. W.		
1-75 K. W.	\$ 41	---
Installing complete, one 110 volt power house battery with charging panel, and connections to motor generator set, incl. the initial charge		
	\$ 133	---
Installing and connecting sign	\$ 53	---
93. Installing battery charging bds. incl. making and setting angle iron frames secured to floor and wall with 4 bolts per frame. Similar to small motor starters. 7 Boards and frames.	\$ 77	11.00
94. Setting and most of the connections to rotary converter board of four panels of 1 1/2" slate on free standing frame incl. some corrections of bus work.		
1-four panel board	\$ 164.50	---
95. Erection of truck charging bd., no connections.		
1 board secured to wall.	\$ 44.76	---

96. Installing and connecting D.C. Dynamometer Control Boards used for testing finished auto. engines. Each board consisting of slate panel about 2 feet square, mounted on 1 1/4" pipe frame, free standing from floor.
- a. Setting 2 vertical pipe supts. and 2 braces by means of 4 floor flanges having two holes each. 8 holes per frame. 352 holes total. Drilling done with heavy air hammer.
- b. Securing braces and mounting panel with standard U bolts.
- c. 25 small connections to resistance. 2 line connections (no motor conn.) No. 4 wire.
- d. Mounting resistance grid at rear with four U bolts.
- 44 Panels as above \$ 425 9.66

The above panels were set in lots of twelve at one time and the costs given would be exceeded without the aid of a good air hammer. Instead of expansion bolts, we used standard bolts leaded into holes.

100. Installing and connecting wall switches and plug receptacles, incl. plates.
- 334 D. P. switches in C.I. boxes.
- 150 Standard recepts. and plates
- 484 Total \$ 219 .48



One of Thirty Rolling Scaffolds

- Installing and connecting shop toggle switches (30 amp. G.E. tumbler type) Generally mounted two to a box and each switch secured with two screws in tapped holes.
- 846 Toggle switches \$ 220 .343
106. Hanging and connecting fixtures.
- 5000 Benj. R.L.M. 100 to 200 watt with S neck and box fitting.
- 703 Benj. R.L.M. 200 watt on stems with Benco socket.
- 226 Duplexalites 100 to 200 watt
- 237 Msl. lamp recept. V. P. and angle refl. assem. & power house.
- 6166 Total \$2,815 .457
107. Hanging and connecting fixtures in Main Shop, incl. making up 385 small strap iron hangers. Fixtures of various types and methods of mounting, generally suspended at 25 feet height from conduit attached to stem. In many cases the cost includes pulling 20 to 40 feet of duplex (used traveling crane).
- 282-500 W. Benj. R. L. M.
- 119-500 W. Benj. Elept.
- 579-500 W. Ivanhoe R. L. M.
- 36-100 W. Benj. R. L. M.
- 1016 Total \$1,005 1.00

109. Assembling and hanging Cooper Hewitts.
- Making and installing stem hangers for Cooper Hewitts in Assem. Bldgs. using stems of 1/2" pipe, couplings, 1" x 1/4" strap iron and two hole pipe strap and two 1/4" round iron hangers.
- 326 Hangers installed \$ 423 1.30
- Hanging and connecting Cooper Hewitts to the above stems. Mounting height about 11 feet.
- 326 Cooper Hewitts \$ 300 .92
- Total cost per lamp 2.22
- Hanging and connecting Cooper Hewitts in shop, lamps hung close to steel at mounting height of about 13 feet. Including making small strap hangers, and connections with two foot lengths of canvasite.
- 268 Cooper Hewitts \$ 345 1.30
110. Capping outlets used as junctions, locating trouble, testing out, etc. \$ 200 ---
133. Installing iron back boxes for Watchmans Magneto stations. Boxes 6" x 6" x 1", each fastened to concrete with two 1/4" expansions. (Boxes so widely distributed that to ring in rotation an eight mile walk is necessary).
- 87 boxes \$ 74 .85
- 11 W. P. boxes cast iron \$ 56 5.10
134. Installing and connecting Watchmans Clock Annunciator of 100 drops, also 100 point interconnection strips in box.
- 1 \$ 180.00
135. Setting time clock and racks (non-electrical) \$ 34.00
- Unassigned Costs (.006%) \$ 464 ---
- Total Labor \$86,679

Details of Main Switchboard Erection—Items Nos. 70 and 71

- Drilling holes in 4" channel mounted on wall using elect. drill, for oil sws. C. Trans. and disconnect switches.
- 400 holes \$ 109 .272
- Mounting 400 amp. oil sws.
- 25 \$ 205 8.24
- Making and placing operating gear of 1/4" pipe. At various angles.
- 25 \$ 200 8.00
- Setting disconnect switches
- 25 \$ 116 4.68
- 6 current transformers \$ 41 6.81
- Erecting 37 panel switchboard incl. pipe supts. (swbd. proper)



Power Driven Hack Saw

Mounting panels and frames \$300		
Mounting panels and small bus	\$212	
Mech. work behind board	\$280	
Small wiring at rear	\$188	
Generator panels	\$28	
37 Panels erected	\$1,008	27.47
Erecting G. E. Bus and supts. all cut to fit assembled and erected on pipe supports by Hatzel & Buehler.		
300 feet single bus. 97 supts.	\$ 165	.634
Connecting oil switches.		
25 switches	\$ 140.35	5.62
150 Lugs, all 400000 & 500000 c.m.	\$.937
Changing 25 Meters	\$ 28	---
Testing and filling 25 oil sws.	\$ 22	---
37 Panel switchboard— Total	\$2,035.35	
Cost per panel		55.00
No Generator bus—no pull box—no conduit work on feeders.		

The Greatest Age

BY NAPOLEON HILL

Following Article Was Taken From Editorial in the Golden Rule Magazine

This is no time for the person who believes only that which he understands. Neither is it a favorable time for the person who doubts the ability of the human mind to look behind the curtain of time down the ages and there see the handwriting of nature. Nature is yielding up her secrets to all who wish to see. She no longer uses the lightning in the clouds to scare ignorant superstitious humanity. That force has now been harnessed. It pulls our trains, cooks our meals, drives our wheels of industry and carries the whisper of our voices around the earth in the fractional part of a second.

Electricity is exactly the same force now that it was three hundred years ago, yet we knew nothing about it then except that we believed it was only destructive. We did not know that it would one day serve as man's greatest servant, obediently carry out his commands. We did not understand electricity, therefore we made no attempt to master it until recent years. We know comparatively nothing about electricity now, but we have commenced to experiment with it, and that is a step toward discovery of what it is and what it will do, when we learn more about it.

Electricity now carries the human voice around the earth. One day it will carry the human body to any given point with speed heretofore undreamed of. Our methods of harnessing electricity are now crude. We shall learn how to manipulate, regulate, and control this universal energy through a process as simple as that through which we now draw water out of a spicket, through the aid of gravity.

How can we discover the possibilities of electricity? How can we tap this

great reservoir of energy and use it at will?

We can do this only through experimentation—through the use of imagination. This is decidedly the age of imagination, inquiry and experiment. The human race has begun to throw off the shackles of fear and doubt and take hold of the tools of progress which have been lying at our feet throughout the ages.

The present is the most wonderful age in the period of history of the human race—wonderful not only in its mechanical development, but also in its mental development. We have discovered, not only how to fly in the air, swim under the ocean and talk around the earth, but we have discovered the cause of all this achievement—the human mind.

The last fifty years has been the most active in the world's history as far as discovery through science is concerned. The next fifty years probably will take us far into the development of the human mind as the past fifty years have taken us into the mastery of physics and mere mechanical devices.

Vibrators for Men

A number of electrical dealers have recently awakened to the fact that a market for high grade vibrators exists among men, and that it is the regular he man type who is using them. Electric vibrators have heretofore been con-

rigid physical training and who are accustomed to rub-downs and massages after strenuous exercise. Other sources of vibrator profits are to be found among the men who want to be considered fit at all times, and among the eighteen year olds with aspirations toward athletic prowess.

The woman athlete is still another target at which dealers are shooting through colorful vibrator window displays. Newspaper pictures and the movies have advertised the lady athlete so widely that flappers are giving up dancing pumps for swimming shoes, and are hurdling, jumping and sprinting in record form. This opens a new market for an old product, and merchants all over the country have quickly sensed it.

It was upon the advice of these dealers that The P. A. Geier Company of Cleveland, prepared the striking window display pictured herewith.

Servicing Appliances

To determine the causes of trouble with domestic appliances and their possible elimination, the Society for Electrical Development has addressed central stations and dealers throughout the country.

As a result of the many replies received certain weak points common to each device will be brought to the attention of manufacturers, in the expectation that these weaknesses can be obviated to a considerable extent. In general the replies showed that the chief causes of trouble in motor driven appliances such as washing machines and vacuum cleaners were due to carelessness in operation. Failure to lubricate being the chief source of trouble. In relatively few cases were the breakdowns due to defective design.

Many cases were directly attributable to the connecting of appliances to lamp sockets, especially of the key type designed to carry only 250 watts. With iron and vacuum cleaners much trouble is experienced with the wearing out of extension cords, and the breaking down of sockets from both electrical and mechanical strain.

All of which points to the importance of educating the public to put in convenience outlets, and replacing the flexible cords when worn—only the highest grade cord should be used, and in the case of heating appliances this should be asbestos covered with ample capacity for the current required.



The Striking Display

sidered a boudoir appliance—and until recently, the trade has concentrated its vibrator selling efforts on feminine America.

The unexpected demand among men comes from those who have undergone

The Greater State Organization

BY LAURENCE W. DAVIS

**Special Representative in Talk to New York State Convention Explains
How Proposed Changes in National Constitution Will Benefit All Members**

I was very much interested in Mr. Mott's remarks on the reorganization plan of the Association. I selected as my title to the few minutes' talk the Greater State Organization, because I believe there is a feeling that this reorganization plan means *lesser* state organization and not *greater*, and frankly I want you to dispel that feeling, for I am thoroughly convinced after nearly three years of intimate study with the state organizations throughout the country that this movement means *greater* reorganization.

Four years ago we adopted the present organization plan by which the National receives its membership through the State, the State through the District, and the District through its subdivided District. It seemed in theory an admirable one; in other words, it seemed as if any man who could become a valuable member of the National Association could hardly become a valuable man unless he was willing to continue the work right down through until it reached his community. In theory, that was fine. Possibly if we had known some of the pitfalls we might have avoided the trouble that arose, but frankly the condition that exists all over the country is one that has been a detriment to association work.

Control Not Reserved

In the first place, the National Association reserved to itself no control over the form in which the State organization should operate. In speaking of the State organization I don't refer alone to New York State. I believe there is no State organization operating but that has faced one great difficulty, and that is the unbusinesslike overhead which has accumulated in the operation of State associations. The cost of the machinery to operate, the collection of dues, the securing of new members and the routine of office work has been of more expense than the number of members that the State supplied would permit.

I have in mind a number of states where the dues range from two to four times the National dues which are paid into the State associations, yet they are always on the rocks. One State association that has been charging four

times the National dues I know is constantly worrying where its payroll will come from for its secretary and office force each week. It has been compelled to go to an organization which was not primarily affected by association work. I am frank now, because I don't want to leave the slightest misunderstanding.

In another State I went into a District office where the District treasurer was involved with the duty of collecting District dues. I haven't any criticism of any of these men, because they have their own businesses, and when you delegate the duties of a State officer upon an individual with an active business and he accepts that, you are placing on his shoulders a far greater load than he can carry. That officer has his own dues to pay and he has to give up a very material amount of his time to conduct this business. I have in mind the instance where we had received no dues in September for the whole year from any member of that District. I spoke to the treasurer about it. He said, "I think they are all paid except one member." He had seven checks in that drawer nine months old and none more recent than three months.

Effect on Your Business

What the National can accomplish—what your state organization can accomplish—is the effect it has on your business. I realize the tremendous effect it does have on your business. Mr. Miller's statement that this organization is one of the cleanest he has ever belonged to I believe is a cleancut expression of the feelings of everyone in the association because the association is a vital part of your business.

Let us apply the same common sense business idea to the association that we would to our own business. It is very easy to have somebody make a motion that we engage in certain expense and to say aye, but it is a different thing to collect that money from the many others who don't attend and upon whom the burden is thrown if you vote for it.

There is one southern state which I went down to in January which had thirty nine members and we received no dues for the entire year. We have a volume of correspondence in the office from members who time and again

wrote in and asked how they could pay their dues. We wrote them that they would have to pay their dues through their State officer, according to our present constitution. They replied that they had written two or three times to their State offices and could get no response. I went down there and collected the dues from every member inside of four days.

Now we are trying to build a greater State organization through this country in a different manner. We have other states that have proven the value of this—Tennessee, Colorado, and a number of states have operated under the same plan. They have state associations. Tennessee has held conventions that are a credit to any state. It is not a large membership, about eighty members, but it has almost one hundred percent attendance at conventions.

In order to become a member of the Tennessee or Colorado association you join the National and you are automatically a member. Iowa has placed a nominal flat fee of \$5.00 for state membership. Ohio is contemplating doing the same thing. This is a practical talk. I am talking dollars and cents in what it is going to mean to you.

Reorganization Will Show Returns

I believe that with this reorganization plan by which we place our association on its feet on its merits it will induce a comparative effort to accomplish real results. It will show to every man a return for the dollar he pays in, and it will increase not alone your state but it will leave money for local associations. I believe that everything we can do to build up a Local is a fundamental part of our work.

This reorganization plan we hope will give us five or six additional field men, five more in addition to Mr. Farley, who will we hope remain here with you. It means that in the redistricting of the country we can put a man in the east here and attend practically every meeting that is held—go around in every community at least once in three months, other men to go into the Great Lakes, the Central, Southern and Mountain divisions; trained National men who can settle any problems, bring in outside ideas, and then once or twice a year get these men together where they

will relate to each other their experiences; then possibly exchange these men from one territory to another, so as to give each particular territory a new angle on the work.

I believe we can put into National activities a new spirit that will reflect in increased membership. It will influence a vast number of men to act, who because of lack of proper understanding with the present operation of the association work, are now indifferent.

All Will Want to Help

There are many communities in New York State and in other States where one or two men in the town are not members because that which they would get out of association work would not directly benefit them, yet they would

gladly belong to the organization under other conditions. If these men could be brought into association work, eventually they would become real factors in bettering the situation. I believe that a careful study on your part of the reorganization plan—that is, this particular part of it—will cause you to go to Cincinnati in October with a view to voting for that movement; that you will go there determined to vote one way or the other, because we want an expression from you as to what you want. After a study of it you will say that it means greater State organization.

Some weeks ago in talking with a New York State member he used the expression, "Skeletonizing the State." He brought out an idea that I did not think much of. He said, "I guess it is going

to be skeletonizing, all that this is going to be left will be skin and bone."

What we are really hoping to do is to cast off the excess fat and the accumulation of useless weight that we have been carrying around and get down to athletic sinew; then what we will make out of it will be an active organization with strong sinews and with the additional strength of membership that will put across work that you can't do today.

Our whole endeavor is to exert as much influence as we can to bring about strong local meetings—coöperative community meetings—to encourage the exchange of ideas; to bring outside men into your field who can help you on any local problems; and I believe the result will be what we are aiming for, Greater State Organization.

How Jobber's Credit Man Can Help Electragist Solve Financial Problems

BY KENNETH A. MCINTYRE

There Are Many Ways, Says Staff Member of Society for Electrical Development in Address Before Annual Convention of Credit Association

The term Electragist having been used in the subject given me, it is well first to define that term. This coined word is derived from the Greek and is being popularized as meaning not merely one who conducts an electrical contractor-dealer business, but one who leads in that business. He has experience and has established himself in business by investing his time and money. Furthermore, he belongs to his trade organization.

What is the Electragist's chief problem? On every hand is heard the answer—ruinous competition. Bearing in mind the definition of Electragist, what then can the jobber's credit man do to help him?

First, by exercising extreme caution in the granting of credit to new comers. The condition of the trade today reflects the really unbusinesslike practice of loose granting of credits.

Secondly, he can help by keeping his eye on those who may be classed as electragists but who nevertheless are accepting work at or less than cost. Any firm which pursues such a selling policy is headed toward financial ruin and is showing the first danger sign. In other words, the credit man's interest should extend to the selling policy of his cus-

tomers. If the customer is purchasing materials or merchandise to turn over at a loss, that customer at once becomes a more dangerous credit risk.

Influence Selling Policy

The credit man can help also by influencing as far as he can the selling

itself some requirements as to proven experience, ability and moral worth of the customer? None of this is intended to advocate divine right in business nor to set up any sort of a wall to prevent intelligent enterprise. Conditions in the past have seemed almost to set a premium on embarking in this branch of the industry, only to fail at the expense of the industry and of the public.

To show the feasibility of having a policy, a case is cited of a jobber who for years has had three prices—consumer, probationary and trade. A new comer who is entitled to credit and who sets out to establish himself in business is given the probationary price for a period until the jobber is satisfied as to his experience and ability to serve. Then the trade prices are granted, with a rebate covering the difference in price paid during the probationary period. As might be expected this jobber has a successful business.

As to such a policy, it must of course be a matter for individual consideration and action. Certainly there should be a policy. It should be the right policy, rigidly adhered to. Then the jobber should let his trade know about it. Desirable business will gravitate toward this jobber.



Kenneth A. McIntyre

policy of his own house so that trade prices are not given indiscriminately. Differentials are granted in return for services performed for the public and for the electrical industry. Therefore should not a jobbing house set up for

Majority Need Credit

From this point let us drop the distinction between electracist and contractor-dealer, and deal with the average man in the field. There are very, very few in the business not in need of the aid of the credit man, so we will be dealing with the large majority. What are the contractor-dealer's financial problems?

1. Lack of capital.
2. Lack of business.
3. Mistaken buying policy.

It must be understood at the outset that most of his troubles are caused by lack of proper business training and in offering assistance this point of view must be maintained. The credit man must first gain the confidence of the contractor-dealer so as to place himself in a position where his assistance and advice will be welcomed and used. He must give the contractor-dealer a contrary opinion of the credit man to that formerly held and must convince him that the credit man can do more for him than any other man in the house because of his special knowledge.

The credit man is usually an official of the company—a man of ability and sound judgment. He should be in possession of information as to the business and financial situation in general. The credit man should be more to the contractor-dealer than is the bank manager. In fact the credit man is the manager of a merchandising bank—lending merchandise, which is money, to credit risks that banks will hardly touch. He should possess a store of knowledge available to the contractor-dealer such as no jobber's salesman would have.

Credit Man Important

Having won the confidence of the contractor-dealer customer, the credit man can then use his influence in many directions. He can help the contractor-dealer to overcome his lack of capital by bringing him to a better understanding of the need for a larger turnover both in merchandising and in construction, proper accounting including a knowledge of costs, prompt billing on a definite basis, prompt collections, holding down bad debts, a firmer policy with slow pay customers, a more economical management of overhead, a better control of personal expenses, establishing a line of credit at the bank and the discounting of his bills. This does not mean that the credit man should make up for lack of capital by extending the limit of credit. At no

time should he loan the contractor-dealer more than the contractor-dealer can meet under the agreed terms of payment.

The credit man must be firm, diplomatic, patient, sincere always. His interest in the success of his customer's business must be personal and from the heart out. He must realize of course that his own success depends upon the success of his customers.

With the confidence of the contractor-dealer, the credit man has the opportunity to inspect his customer's books and thus gauge the success of the business as well as to offer helpful advice and suggestions. It is essential that the credit man have a good knowledge of accounting to advise the contractor-dealer in a simple but adequate system.

Accounting System Essential

Some years ago one credit man found this so necessary that he devised an accounting system of this kind for the contractor-dealer. He personally installed the system in more than a dozen cases and saw it operating satisfactorily. There was a marked improvement in each case afterwards. Today it is not necessary for the credit man to go to the trouble of devising a special system because of two systems—one for the large business and one for the small—issued by the National Association of Electrical Contractors and Dealers. Every contractor-dealer should be using a system similar to one of the above. Incidentally, the credit man should be familiar with the advantages of the contractor-dealers' association and should recommend it to his customers that they become members.

As to lack of business, this is more of a sales than a credit matter, but the credit man can persistently urge that the contractor-dealer should have a consistent and continuous selling plan under way instead of the usual hit or miss effort. The credit man should interest himself in the price the contractor-dealer sets for his work or for his goods. Many contractor-dealers are afraid to charge a price which nets them a fair profit and too frequently are content with an insufficient profit for the effort expended. The credit man can do a good work in building up business for the contractor-dealer by helping his customer to maintain a sound profit policy.

Buy For Profit

When it comes to buying, the credit man should continually caution the con-

tractor-dealer against overbuying and against buying for price as against profit or turnover. There is no reason why the credit man and the salesman should conflict on this point, for the interests of both demand that the contractor-dealer be not overstocked.

To work such a plan successfully, the credit man should sell the idea to the salesmen of his house. He must win their coöperation, not their antagonism. He must prove that this kind of sound buying policy is conducive to better business for all concerned. The credit man can very well handle complaints and leave salesmen free to handle orders. This will often help to eliminate excuses which are frequently used for delaying payment. Loyalty to his house and also to the customer are not incompatible. They live very well together and can work for the good of all concerned.

Obviously field work is essential. The credit man cannot be successful by attempting to handle his customers from a desk in the office and by means of stereotyped letters. The credit man today is a most important person to his own house and is the most potent factor in making contractor-dealers into business men.

The credit man's responsibility at the same time offers him an unequalled opportunity to build for himself, for his house, and for the industry.

Traffic Signal Colors

The day is not far off when red, green, and yellow, when used as traffic signals, will each have its distinctive meaning, and this meaning will be uniform all over the country, according to the decisions reached at the first fully representative conference ever held on the subject in this country. When that day arrives the annual toll of deaths and serious injuries resulting from traffic accidents will be reduced by the elimination of accidents caused by the confusion or misunderstanding of signals.

This conference on the standardization of colors for traffic signals was recently held in New York under the auspices of the American Engineering Standards Committee. There were present representatives of practically all of the big national engineering societies, safety associations, electric and steam railway interests, automobile dealers, manufacturers and users associations, police and traffic departments, insurance companies, and several departments of the federal government.

What Associations Mean to the Electragist

By J. E. BULLARD

Examples of How They Helped Other Trades Show What Great Advantage May Be Derived From Them In the Electrical Industry

During the course of a talk with an officer of a local electrical association he made the remark that though he was interested in the association, believed in it, and was willing to do all that he could to make it succeed he could not see that it had been of any material benefit to his business during the past year. He thought it had been some help but he could not see how it had benefited him.

A great many members of all associations, especially the local ones feel very much that way towards their associations. They value the social end of the getting together but see little of business value in the organization. As a result when times are hard and every economy must be practiced the temptation is to give up membership in the association or at least to delay paying the dues.

This holds true no matter what the association is. It is true of the smallest local electrical association and it is true of the League of Nations. It is not always easy to see the business profit. Sometimes this is because it is not easy to see what would happen if there were no associations and sometimes it is because it is not easy to realize that the evolution of competition has carried it beyond the individual concerns and made it a matter of the striving of industries for business rather than the striving of individuals for business.

Now it sometimes happens that it is easier to see the value of association work by observing some other industry than it is to look at one's own. There is an excellent example of the value of local association in an industry that is indirectly if not directly competing with the electrical business. That is in the laundry industry.

Case of Laundry Industry

It was not so many years ago when the laundry owners in Providence were all trying to cut each other's throats. They were not working together. Some of them were scarcely on speaking terms. Few of them were really making any money. In those days they were not rendering the service that they are rendering today and they were not doing so much business per capita. It is more

than likely that had the laundry owners continued as they once were it would be easier to sell washing machines in Providence than it is now that so many people have been taught to send their washings to the laundry.

At any rate the laundry owners finally decided to get together and talk over conditions. Their number is small and no formal association was deemed necessary. They just get together when there is something that seems to be necessary to be talked over and they talk matters over. The meetings are strictly business meetings called for the purpose of finding ways of rendering better service and gaining more of the confidence of the public.

Since they have been doing this the business of practically every laundry has increased. A great many of the former inefficient methods have been eliminated. The laundries are rendering better service and are giving the people greater value for their money. During the first few years it is probable that no laundry owner could see where his own business was being greatly benefited. It is quite possible that no laundry owner today can show just how much getting together has benefited him in dollars and cents but there have been a number of incidents that demonstrate that they have benefited.

Value of Coöperative Advertising

These laundry owners among other things advertise coöperatively. At the time when there was a great deal of agitation in Massachusetts against the prices that the laundries charged they started an advertising campaign explaining their prices and asking people to visit the laundries. They welcomed an investigation. The result was there was no agitation against the laundries here. They did not have to overcome the ill will and the falling off in business such an agitation would have brought about. If they had not gotten together however and forestalled such an agitation there surely would have been one.

When laundry week came and the laundries all over the country were trying to get the people to visit the laundries, the Providence laundries had according to an investigation made by one

of the leading laundry journals, the most successful week of any laundries in any city of the country. They surely could not have done this if they had not gotten together. A study of the laundry situation in Providence indicates that at least some of the laundries are doing a volume of business at least twice what they would have done had the laundry owners not gotten together and worked together. They have been able to accomplish this because they have learned the value of getting together for strictly business reasons. They have accomplished it because they have placed business foremost. There has been nothing social connected with it.

Attending National Conventions

The cleaners and dyers in the same city furnish an example of the value of attending the national conventions of associations and of bringing back and adapting ideas gained there. One of the men who attended the last convention of cleaners and dyers heard of a new idea for developing new business. He brought it back and presented it to the other cleaners and dyers in town. It was a plan that required coöperation. They thought the plan a good one. It was carried out. Business was increased slightly. It didn't seem to pay to a very marked degree.

A little analyzing of the results however showed some rather surprising facts. Business conditions were such that business was falling off. The campaign increased business a little above the total for the same period during the previous year. Delving deeper into the figures however indicated that the business which the campaign was designed to bring in was actually increased some seventy-five percent and that this business was new business that had never before existed. When business conditions improve this new business will be retained and that which was lost as a result of unfavorable business conditions will come back. That one trip to a convention certainly paid.

Now the interesting thing about this is that these industries are getting the money that was previously being spent through other channels. Money that might otherwise be spent for electric

washing machines is going into the coffers of the laundry owners. Had the electrical industry of Rhode Island never gotten together it is quite possible that while the electragsists were working hard all summer and none of them making much of a fortune the laundry owners would be spending their summers in Europe.

It Takes Years to Show Profit

No one year may show just how any individual business benefits from association membership. A period of years always tells the story. Where there is little association interest there may be a few shining examples of prosperity but the prosperity of the average concern in the industry is likely to be small.

The farmers are a good example of this. The New England farmers have never been strong for associations. What associations they have had for the most part have been more or less social in character. The average New England farmer has not been very strong for business associations. The result is that as one drives through many parts of New England he finds abandoned and with the buildings falling to pieces, many a farm upon which a fortune

could be made if the farmers had gotten together, learned the crop best suited to these farms, and then had marketed them in the most intelligent and efficient manner.

Only a few generations ago some of the young men on these very farms went west. They or their descendents are now members of associations on the Pacific coast. When the farmers still remaining in these deserted sections, and remaining there because they haven't yet decided to sell their farms for a price lower than it would cost to replace the buildings, go to the nearest city or village they find displayed in the fruit store, apples that have come from the west and which are selling for fancy prices, though it is a question whether they are as good as those which could be raised right in the New England hills. The difference is due in a large measure to the difference in the attitude taken by the farmers in the two sections of the country to associations.

Tangible Profits to Every Member

Do associations both local and national pay tangible profits to every member of the association aside from the social and educational benefits? It would seem that the example of the

Providence laundry owners would answer this question. If it does not it would be well for a man to drive over the less frequented roads of southeastern New Hampshire and Western Massachusetts and penetrate the sections where once there were prosperous farms but now it is hard to find a building in a good state of repair. Then travel through the citrus fruit section, the apple section, or the raisin section of the Pacific Coast and note the difference. Bear in mind that the main difference between these two sections is one of the attitude towards associations. Those California, Oregon and Washington farmers found it hard to keep from over-producing before they got together. Now they find the chief difficulty is supplying the demand.

Membership in national and local associations may put money into one's pockets in such a quiet manner that it is never noticed but it most certainly does put money in the pocket each and every year. Besides it is cumulative. The benefits increase with the years. Let an industry or any large section of an industry ignore association work and sooner or later that industry becomes poverty stricken. This is a truth that should sink in.

Why Fan Business is Profitable

BY R. J. HEANEY

**Electragsists Can Capitalize on Specialized Fields That Need This Service
Says Member of Supply Department, General Electric Company**

A fan for every room.

This is the slogan that is being sounded throughout hotel circles.

What it means to the fan trade may be judged from the fact that according to a well known hotel directory there are approximately 25,000 hotels in the United States with from ten to over 2,000 rooms each.

Were each of these rooms to be thus equipped, it would mean, even at only ten rooms per hotel, a call for 250,000 fans. But estimating the average hotel at fifty rooms, the total would be 1,250,000. Villages of the 2,000 population class have, in numerous cases, hotels of from 25 to 50 rooms; cities of 10,000 to 20,000, hotels of from 50 to 150 rooms; those of 100,000 four and five times as many, and so on. In case the town or city is a summer resort, the number of rooms often is

very large. A feature to be remembered also is that these hotels are scattered all over the country. There is scarcely an electragsist in whose territory there are not several.

The opportunity they offer him is obvious. In covering it he has the advantage that he is not trying to sell a new and untried device. Everyone knows about fans. Millions are in use in homes, offices and elsewhere.

Public Sold on Fans

The electragsist is therefore able to call the hotel manager's attention to the fact that the public is generally speaking sold on the value of this device, for it is true that the man for example who uses one in his home or in his office will when traveling very naturally turn to a hotel whose rooms are thus equipped.

Every Room with a Bath makes a strong advertising point. Every Room

with an Electric Fan would exert an appeal equally strong during the summer, and would have the advantage of being some what unique.

The question of expense both of equipment and operation may be raised. The first is answerable by the fact that it is small, especially when compared with some features of plumbing, decorating, furnishing, etc., that partake of the nature of luxuries as well as necessities. The electragsist has an opportunity to suggest some comparisons in this matter.

As to the cost of operation, it will probably astonish some managers to learn that the expense of running fans is about the same as operating electric lamps. This has not been sufficiently impressed upon the public in general. Naturally, a person who has noted a fan whirring on hour after hour is apt to assume, unless he makes inquiry, that

it must require a large amount of current, with consequent expense, to run it.

Useful Table of Costs

The following table giving the comparative cost of operating fans and lamps at ten cents and at four cents per kilowatt hour contains nothing new to the electrageist, but it may be both new and surprising to many a hotel manager.

FANS	Cost per hour to operate at rate of 10c per KWH.	No. hours it can run for 1c.	Cost per Hour at rate of 4c. per KWH.	No. hours it can be run for 1c.
9-inch	1/3 cent	3	1/3 cent	8
12-inch	1/2 cent	2	1/2 cent	5
16-inch	2/3 cent	1 1/2	2/3 cent	3
32-inch	1 cent	1 1/4	1 cent	3
52-inch*	1 1/2 cent	3/4	1 1/2 cent	1 1/2
Lamps				
25-watt	1/4 cent	4	1/10 cent	10
40-watt	2/5 cent	2 1/2	1/5 cent	6
60-watt	3/5 cent	1 2/3	1/4 cent	4

*Ceiling fans.

The two rates for current given above may be considered as fairly representative of rates in general, the 10 cent rate for customers who use a relatively small amount (such as households not equipped with an electric range) and the 4 cent rate for users of a greater quantity.

It will be noted from this comparison that at 10 cents per K. W. H. it costs approximately the same amount per hour to operate a 9-inch fan that it does to operate a 40-watt lamp, and but 1/10 of a cent more to operate a 12-inch fan. The cost of operating a 16-inch fan is only 3/5 of a cent per hour



Showing Typical Installation in Hotel Ballroom—There Are Similar Opportunities for New Wiring in Your Own Locality

more than the cost of operating a 40-watt lamp, and but 1/5 of a cent more than that of operating a 60-watt lamp. The difference is correspondingly low with a four-cent rate.

A Means to New Business

There are certain advantages from the hotel manager's point of view in installing the fans on the ceiling or the walls rather than using the portable type. This means the sale of a wiring job; in fact there often are excellent opportunities to sell a wiring job in case portables are used.

Ceiling fans lend themselves admirably to use for the purpose under discussion, and some hotels have equipped every room with them. The railway type is also adapted to this purpose. It has a metal base into which the fan

bracket hooks, and which is provided with contacts. If it is desired to remove the fans for repairs, or in the fall for winter storage, this base can be covered with a cover which like the fan fits into the base.

The field for fans in hotels is not limited to their use in bedrooms, discussed above. Dining rooms need them even in small hotels. The kitchen, the barber shop, the lobby, the laundry, etc., all present sales opportunities for them.

Tourist travel is under way. The vacation season is here. The weather is a constant reminder of the comfort a fan provides. Extensive fan advertising is being conducted. The market is at the very door of the electrageist. Now is the time to take advantage of the conditions that combine to his advantage.

How to Read for Profit

BY DR. NORRIS A. BRISCO

Director of New York University Training School for Teachers of Retail Selling; Formerly Director of School of Commerce of Iowa State University, Etc.

Does the average merchant ever try to find out just how much his trade paper and a good business book will add to his profit?

Very often he will say: "Oh well, I can't bother reading a lot of trade papers and a library full of business books. Actual experience is the thing that counts with me. Give me the hard practice and throw the theory out of the window."

There is where the merchant is wrong. As yet he has not learned to realize the real money value of a business magazine and a good business book.

Fortunately enough, however, many progressive merchants have learned the value of good business magazines and books and are able to show extra profits, as a direct result of their mental enterprise.

I know a retail merchant who is the head of a large department store, in fact one of the largest in the United States. For the past ten years he has devoted all of his time building up his vast business and he is responsible for the inauguration of a number of merchandising schemes that have found wide application.

Consider Books Personal Information

Now imagine this man extending to you an invitation to come to his office where perhaps he should devote an hour of his valuable time relating his business experience and showing how some of his brilliant merchandising ideas could be used to your own advantage.

Imagine this man saying to you, "Now you can go back to your own place of business and try out some, or at least one, of my ideas."

Would you regard this merchant as handing you a lot of worthless theory?

Of course not.

I wager the average merchant would come away from such an interview fully conscious that he had spent the most profitable hour in his life.

And now suppose instead the merchant had spent an hour of his time dictating an article relating in painstaking detail one or more of his profitable business boosting ideas, in which he points out how you could adapt any one of these ideas to your own advantage.

And suppose again the merchant spent several months of his time getting together two or three hundred pages of data concerning his successful business methods, methods that had brought millions of dollars during the past ten years of his active business experience, and these two or three hundred pages finally appeared in book form.

Penny Wise Pound Foolish

Would you refuse to read the magazine article and the book written by that eminently successful merchant? Would you say, "I can't bother reading a lot of books and trade papers?"

You might as well have said, "It doesn't make much difference to me if that successful merchant takes the trouble to run down to my place of business to show me how to increase my sales a hundred percent."

Yet it is surprising indeed how lightly some merchants regard trade papers or the books that relate to their particular business. Even those who read are inclined to read carelessly and without extra mental effort. You might skim over the contents of the current number of your trade paper, or you might read a page here and there in some business book, but that does not mean that you are absorbing the best that these publications are intended to give you.

The merchant should realize that each time he passes up a good idea in some book or trade paper he makes room for some active and brainy competitor who profits from that very idea.

Unfortunately there are some trade papers that are below standard. But many times that is the fault of the subscribers who have not learned to demand enough of the real thing.

Every Trade Paper Has Valuable Ideas

I have on my desk the current number of a representative trade paper. There is a practicable, money making idea in every paragraph. It is a veritable mine of valuable ideas, from which the merchant can make his choice.

A dealer need not spend more than 30 minutes a day in reading, supplementing this half hour with an hour of clear, solid thinking in order to accumulate sufficient merchandising knowledge to enable him to compete with his strongest competitors.

A half hour spent in reading is not a great deal, but multiplied by 365 days it means an accumulation of business knowledge that will ultimately materialize into hard dollars and cents.

I never could quite understand why the average merchant should so thoughtlessly neglect the reading of trade papers and business books. With new forms of competition becoming evident every day, with new trade conditions springing up overnight, it is absolutely essential for the merchant to be equipped with a reservoir of merchandising ideas which he can call to his command during any emergency.

The retailer should not fail to read books that are concerned with his immediate business problems and books that treat in a thorough and comprehensive manner the merchandising problems of the day.

Read Books As Well As Magazines

Trade magazines and books go hand in hand. A trade magazine contains numerous ideas, each treated more or less briefly. The purpose of such articles is to make the merchant think. A book serves a slightly different purpose. It generally consists of a hundred or more pages devoted entirely to the explanation of a single merchandising idea, or to certain phases of business development, treated in a thorough and comprehensive manner.

The intelligent reader must make use of both sources of information. He cannot minimize the value of each source. Each source inspires thought and action.

I have before me a volume prepared by a prominent merchandising man. For a good many years the author served as the advertising manager of one of the largest department stores in the country. You will find his name on the table of contents of the best trade publications.

I open the book at random. Here is a chapter devoted to special Christmas sales. The chapter is headed, "Advertise Goods in December Instead of Prices." Five pages packed full of interesting information on Christmas sales. Read the chapter and the next time you take up your trade paper you will be able to digest better some item

relating how some retailer increased his Christmas sales.

Another chapter, "Make One Thing Impressive in Every Advertisement." And another, "Pick Out the Best Selling Points," and follows a discussion on how to create interest in the excellent values of your goods. And all based on the actual experiences of some of the highest paid merchandising men in the country.

Thirty minutes spent in reading a day might mean a lifetime of prosperity.

The Electragist Triumphs

These verses written by Dick Smith in a recent number of the Southern California Association's bulletin are printed for the benefit of those electragists who are inclined to despair at times:

The electrical contractor, sad to relate,
Is on his last legs, I am told;
Each day he draws nearer the pearl bordered gate
Where highways are paved with pure gold.

How he came to get into this terrible fix
Is a topic that never gets stale;
The orators tell him his judgment is nix,
And bankers won't lend him their kale.

When he figures a job his pencil is dull
And he thinks he will hit it this time,
But when he gets through his ledger is full
While his cash drawer holds nary a dime.

To get down to facts, he is just a poor dub
Who should work with a shovel or pick.
His present activities won't buy his grub;
In business he's merely a hick.

At least this is what his advisers all say,—
Advice as you well know is free,—
But till he proceeds on his rambling way
Ignoring wiseheimers like me.

Yes—scmehcw or other he struggles along
In spite of the critics who cuss.
He minds his own business—he sings his
own song

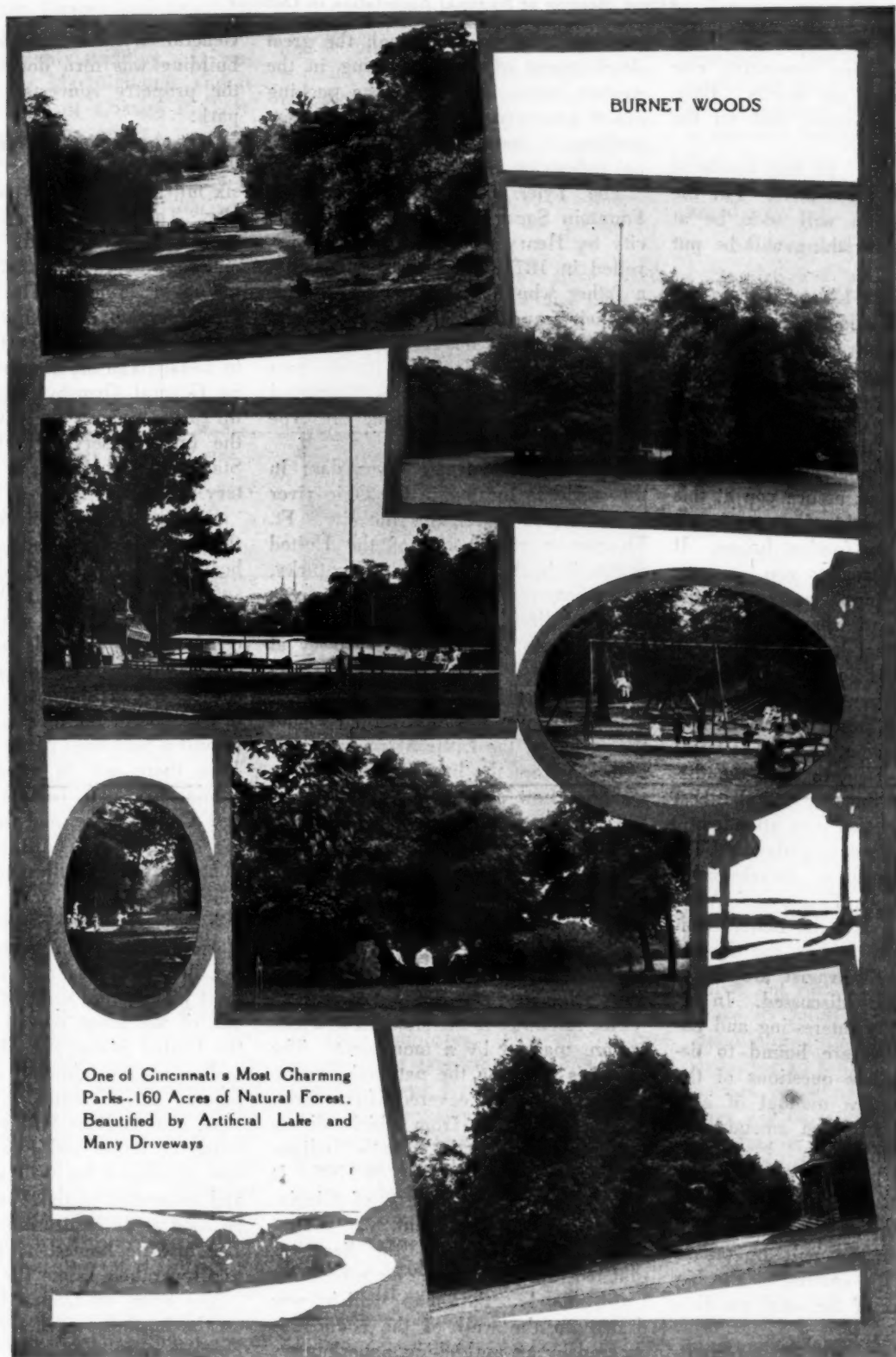
And buys a new home or a bus.
The moral of this little jingle is plain;
Calamity howlers may cry,
But the contractor-dealer will always remain
And somehow or other get by.

Rainy Days the Best

Don't waste good thought and energy on such a thing as a rainy day. Welcome it, and go out and take your wetting. Get soaked clear through if necessary but keep moving.

Remember that for every man who does not grumble on a cloudy day, there are a hundred who do. That's why rainy days are golden days for the salesman or clerk who remains cheerful and cheers up the customers he meets.

They welcome a cheerful person on a rainy day and give him better attention for that very reason than they would on some other day.



This Beautiful Park Will Afford Conventionists Enjoyable Pleasure Trips and Enable Them to Get Back to Nature at Will. It is readily Accessible From Convention Headquarters

All Hail the Big Annual Convention

Cincinnati Will Ring With Joy for Those Who
Attend Meeting of National Association in October

The sun is hot and the days are long. When it isn't raining something else happens to dampen our spirits. Business is brisk, say some, and on the blink, say others.

But never mind. In the words of the song—O dry those tears. For the National convention will soon be at hand and then everything will be put right again.

Yes, October 11, 12 and 13 are the dates, and the place is the Hotel Sinton, Cincinnati. Executive committee meetings will be held on the 9th and 10th. Mark it all down on your calendar so you won't forget. You will be informed fully concerning the program in the September and October numbers of this magazine, but let us assure you at this time that the schedule of events is going to fulfill your fondest hopes. It will prove a real treat to you.

Some of the finest speakers in the land will talk, and when you witness the innovations that have never before been tried, in addition to taking part in the pleasure events, you will leave the twenty-second annual convention of the National Association of Electrical Contractors and Dealers with the distinct impression that it was the best affair of the kind you ever attended.

Business: Yesterday, Today and Tomorrow, the Business Development Movement, How An Employers' Association Functions, and the Better Business of the Supply Jobber, the Central Station and the Electragist are topics that will be broadly discussed. In addition some mighty interesting and important discussions are bound to develop concerning the questions of the adoption of the new manual of estimating and the proposed amendments to the constitution.

But Cincinnati is a long way off you say? Even if that is so, don't let the fact worry you for an instant. You can rest assured that you will be repaid a hundred fold for coming to the big event. Just think of the ideal vacation you will have.

There is plenty to see in Cincinnati. The suspension bridge is the oldest bridge of its kind in the United States. It was opened in 1865, and has recently been extended.

The system of stock yards was famous before Chicago was known as a

packing town, and although the great development of cattle growing in the western states has moved the packing center westward, slaughtering and meat packing is one of Cincinnati's principal industries.

The Tyler Davidson Fountain on Fountain Square was presented to the city by Henry Probasco, and was unveiled in 1871. There is perhaps not a father who has children well along on their way through high school, and beyond, who has not seen this fountain pictured time and again in his own school days—it was always illustrated in the geographies alongside the type matter descriptive of Ohio.

The largest movable river dam in the world is located in the Ohio river at Fernbank, just below the city. Ft. Thomas, a reservation of the United States, is in the highlands of Kentucky, and is connected with Cincinnati by a street car line. It covers 111 acres, has 59 buildings, and the water tower at the entrance is a beautiful stone structure 102 feet high. One of the most magnificent views of the Ohio river, and the valley of the Little Miami river, is afforded from the brow of the hill, in what is known as the Officers' Circle.

The Literary Club of Cincinnati was organized in 1849, and has been continuously identified with every literary activity. It is probably the oldest club of its kind in the United States. Near it is the old Garrett House, in which Thomas Buchanan Read wrote "Sheridan's Ride."

Not far away is the site of Ft. Washington, marked by a monument. The fort was built by the national government in 1789, and covered fifteen acres. It was the station from which all expeditions against the hostile Indians started during the year 1789-1796. It was the eastern boundary of Cincinnati as originally laid out.

Sherman's March to the Sea was planned in a room of the Burnet House. Unfortunately, the map which was drawn on the wall of the room was covered by an unthinking paperhanger, and cannot be reproduced.

Lytle Park, situated on the square between Lawrence and Pike, and Fourth and Third streets, is the site of the old Lytle homestead, built in 1810 by the grandfather of the poet and soldier,

General William H. Lytle. The old building was torn down in 1898, and the property converted into a public park.

The observatory of the University of Cincinnati is located at Mt. Lookout, six miles northeast of the center of the city. The grounds comprise four acres on the summit of a hill. The first Cincinnati observatory stood on the summit of Mt. Adams. The cornerstone of this observatory, the first in the United States, was laid by John Quincy Adams, in 1843. The observatory was founded by General Ormsby M. Mitchell, and up to the time of the Civil War it was the finest observatory in the United States. The building is now a monastery.

Spring Grove Cemetery is recognized throughout the United States for its beauty. The mortuary chapel is a fine specimen of Norman architecture. The stained glass window represents the Ascension. The grounds cover 600 acres.

Cincinnati is a city of beautiful homes and stately buildings. St. Peter's Cathedral is one of the most picturesque and beautiful buildings in the western states. Then there are St. Francis de Sales church, Rockdale Temple (Jewish), the new Court House, and the most imposing of Cincinnati buildings, the Union Central. It is the tallest building in any inland city in the world, 34 stories and 495 feet above the street level, and 4 stories and 40 feet below street level.

College Hill is one of Cincinnati's most picturesque suburbs, and contains one of the finest private residences in the United States, the Thomson Home, and exact reproduction of the French palace, the Trianon. On Hamilton Pike, near College Hill was located the home of Alice and Phoebe Cary. It was purchased by William A. Procter, and presented to the Trader Sisters to be used as an institution for the Blind. The historic homestead is now known as Clovernook Home for the Blind.

The home of Lyman Beecher stands on the northeast corner of Gilbert and Foraker avenues, Walnut Hills. It was the home of Harriet Beecher Stowe while she gathered material for "Uncle Tom's Cabin," and met the originals of the persons that figure in the story.

The original block house in Cincinnati was built by the Rev. James Kemp-

er, the first settler of Walnut Hills. It is now preserved in the Zoological Gardens.

The Taft Home on Pike street is also one of the famous and beautiful homes of Cincinnati. It is one of the few old homes still standing. It was built in 1825 by Martin Baum, and is now the residence of Charles P. Taft, brother of the ex-president.

This enumeration of just a few of the interesting things about the convention city is sufficient to show you why you cannot afford to miss the convention activities this year. Don't forget your friends expect to see you at Cincy!

How to Floodlight

BY EDGAR J. FRIEDRICH

Representative of National X-Ray Reflector Company Presents Details of Art

Nobody ever tried to build an ugly building. On the contrary, when a building is put up the owner is anxious to give it distinction in order to derive a certain amount of publicity from it. Some have gone still further in the matter of building advertising and floodlighted their buildings with good results.

Floodlighting is now generally considered one of the most effective forms of building advertising and we who are interested in the electrical industry and in good sound business building in general have analyzed floodlighting from the point of view of the electrical merchandiser, as well as of the business man, building owner, and architect, and find that it fits exceedingly well into the work of all of these people.

To the business man and building owner floodlighting is an excellent means of advertising his business. Our foremost business men have realized the advertising value of floodlighting and are making it work wonders for them.

At night when the day's work is done, and people are in a receptive mood, floodlighting does its work. Thousands of people see the floodlighted building on their way to the movies and the structure is impressed indelibly upon the minds of these passersby. Upon viewing the gigantic new Wrigley Building at Chicago while floodlighted, strangers frequently ask, "what is that big building over there all lit up?" The answer is, "The Wrigley Building—yes the company that makes Spearmint Gum." It is something different, and though it may seem far fetched, something that will have a favorite influence

upon this man or woman when he has to choose between Spearmint and Yucatan.

Public Interest Created

General public interest in the building or business occupying the building is also created by floodlighting. It gives rise to a type of civic pride or loyalty and in an argument even the small boys playing on the streets will defend the floodlighted building. Why? Simply because the firm has gained confidence and has sold itself to the public by floodlighting.

Industrial plants too have used floodlighting to great advantage in plant

into prominence saying: "Wheatena the Cereal that Tastes Good." Who wouldn't be tempted to try a package of Wheatena for breakfast some morning?

But you may think "why not use studded or outline lighting to get these results?" That's just the point, you cannot get these results with only studded or outlined lighting. Floodlighting is the only method of exterior lighting that effectively emphasizes the architectural detail of the building in a dignified way.

Studded and Outline Lighting

Studded and outline lighting have their purpose and are often used to good advantage especially in connection with floodlighting to get a desired result such as the electric sign on the Wheatena Building. When used alone, however, very little of the light from the numerous lamps actually strikes the building. Most of it goes off into space leaving the building clothed in darkness behind the rows of numerous lamps.

Floodlighting projectors are so designed, that all of the light is directed into one general direction which makes it possible to concentrate all of the light excepting the small portion lost by absorption upon the building where it is wanted. If properly engineered floodlighting can intensify the features of the structure even more than daylight, which is often very desirable in highly ornamental buildings such as churches, or in statues or monuments.

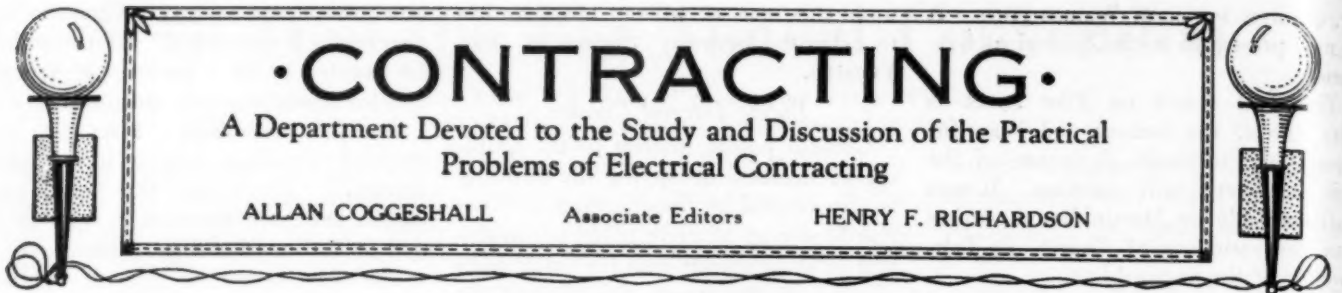
In the floodlighting of buildings the problem is to secure a uniform illumination over the entire area lighted, with as few projectors as possible. This in itself would not be a difficult problem to solve, but surrounding conditions often make its solution more involved. In floodlighting the Wrigley Building, Chicago, for an instance, the powerful projectors could not be stationed at random, but on account of the fact that the building is located in a densely populated district and is very high the engineers were obliged to mount projectors on the roof of nearby buildings, and with the location of the projectors known they proceeded to work out what type and size of projector was most suitable for the various position. The projectors for lighting the tower of the building were concealed on the roof of the building itself.

Lighting engineers and architects have made interesting experiments in an attempt to emphasize architectural detail by floodlighting and the results have been gratifying.



Soldiers' and Sailors' Monument

advertising and in promoting the loyalty of their employees. One of the best examples of this kind is the Wheatena Company near Rahway, N. J., located along the Pennsylvania Railroad. This company manufactures the well known Wheatena breakfast food and has a plant constructed of white concrete. The building is beautiful during the day, but floodlighted at night it truly reflects all the purity and sanitation of a modern food producing industry. The pure white building stands out sharply contrasted against the ebony sky presenting a picture never to be forgotten. Passengers gazing out of the windows of the passing Pennsylvania trains cannot help but be impressed with this splendid example of planned advertising. As they wonder what the building could be, a bright electric sign flashes



Fire Alarm and Watchman Supervisory System

There are many types of fire alarms and watchman supervisory systems to choose from and the proper choice for a particular job is often a problem.

Fire alarm systems may be automatic or manually operated, open or closed circuits, local or operating to a central office. The automatic type, as for instance the Derby, consists of two conducting discs separated by a thin perforated insulating material and a disc of fusible metal. When a temperature is reached at which the metal fuses the circuit between the conducting discs is completed by the fused metal filling the perforations in the insulating material. Such a system is of great advantage in waste paper rooms, closets likely to contain oily cloths or other combustible materials, or other locations where a fire is likely to start without being observed. Such systems are also of value in coal bunkers containing soft coal. Vertical iron pipes may be installed in the bunkers and the signal units dropped down the pipes.

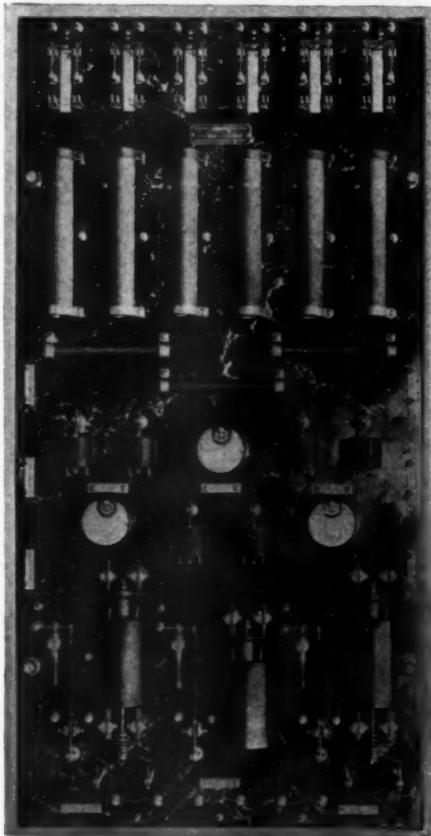
An automatic fire alarm system is very desirable in a residence and may be the means of saving life as residence fires frequently start in the kitchen or cellar while the family are asleep upstairs. These units may be obtained to operate at a temperature lower than ignition temperature and thus give warning of the danger of a fire before a fire actually starts. Where there are a number of widely separated units they may be connected singly or in groups to an annunciator which would show the approximate location of any unit which might operate.

The existence of such systems does not appear to be generally known to architects and owners and there are without doubt many buildings in which such a system would be of great advantage where the matter has never received consideration. For this reason it is to the owner's interest as well as to the contractor to suggest an auto-

matic fire alarm system where its use seems to be justified.

Workmanship Must Be of Best

In installing this or any other fire alarm system it is to be recommended that all materials and workmanship be



Automatic Control Board for Fire Alarm System of Closed Circuit Type

of the very best for obvious reasons. A fire alarm system which fails when needed is far worse than none at all. Rubber insulated wire in iron pipe conduit with outlet boxes should be used as far as possible. A dependable source of current is of great importance.

A closed circuit fire alarm system is generally to be preferred to an open circuit system although if an open circuit system is carefully installed and frequently tested it should be perfectly satisfactory. With a closed circuit system if any wire breaks or contact becomes corroded, for instance, a signal will be given. Many refinements may

also be obtained such as lamps and trouble bells to indicate different faults in the system, such as grounds, open circuits or short circuits in different ways.

The simplest form of closed circuit system is one with normally closed contacts at each station each connected to a drop on an annunciator which is held up by the current through the circuit when the contact is closed. If the circuit is opened at contact or otherwise the drop falls and closes another circuit to one or more bells or gongs. In this way it is only necessary to keep sufficient current on the closed circuit to hold up the annunciator drop which may be very little. By the use of sensitive relays the current which must be maintained in the continually closed circuit may be still further reduced. The apparatus for such a system is simple and comparatively inexpensive but the wiring may be a considerable item as a separate wire is required to each station in addition to the common wire.

All Stations Connected

With a closed circuit system of the make and break type all stations are connected in series on a single circuit. When a station is operated instead of simply opening the circuit the circuit is opened and closed a number of times, the number of breaks being different for each station. The interruptions in the circuit are indicated by one or more single strike bells or gongs operated through a relay the number of strokes indicating the location of the station which has been operated without the use of an annunciator. The stations of this type are more expensive than the type above described but the wiring is simpler. There are also certain other advantages as to testing, etc., and for these reasons this type has been more highly developed.

The necessary control and testing equipment with batteries to operate the system may be obtained complete in a steel cabinet from several manufacturers. The stations and gongs may be

obtained with drilled and tapped holes to receive conduits directly, eliminating the necessity for outlet boxes. Different locations have different requirements as to source of energy for operating such system. In some localities connection and lighting service is permitted and in others forbidden and Edison cells or storage battery and motor generator set insisted on.

The usual form of open circuit system consists of stations with contacts normally open with a common wire and a wire from each station to an annunciator and extension bells or gongs, preferably operated by a relay. The closing of the contact at any station rings the bells or gongs and indicates the location of the station on the annunciator. There is no current flowing in the systems until a station has been operated. If a contact at the station which is operated is broken or corroded or if any wires are broken or short circuited the signal will obviously not register while with the closed circuit systems the trouble would make itself known as soon as it occurred. However this may practically be overcome by periodic testing.

Types of Stations

The stations of any system may be either break glass type or lever or push button operated. The break glass type are less likely to be accidentally or maliciously operated but should always be provided with some means of testing without breaking the glass. The testing means should operate the same contacts as if the glass were broken.

Any of the above types of systems may be of the pre-signal type. In this type the usual method of operating the station gives a preliminary signal on a smaller bell or gong. The source of the signal is then investigated by an authorized person and if conditions warrant a further signal is sent from the same station by means of a key which will operate the regular gongs. This feature is desirable in a large factory or institution for instance where serious consequences may follow an alarm given either for a trivial fire or maliciously for no fire at all.

In many cities gongs are required throughout hotels and certain other types of buildings of a sufficient number to be heard at all points. The pre-signal feature is very desirable for such an installation. This feature requires a special station box and generally requires additional wiring.

Another type of system is the non-interfering type. This is used principally where there are a number of stations distributed among a group of buildings such as a group of industrial or institutional buildings. A fire in or near one building may be seen simultaneously. This would result in confusing the signal where make and break boxes are used. The non-interfering box is designed to prevent this and provides that after a signal has started from one box, no other box can operate until the first has completed the signal. Such a system is expensive and should not be used unless necessary.

Fire Alarm Service

In many cities there are companies which supply fire alarm service to buildings. The conduit and wire is generally installed by the electrical contractor and the station boxes are installed and connected by the service company. These systems are usually of the make and break type and record a signal at the office of the service company who relay it to fire headquarters. If desired a tape register may be installed in the protected building which will indicate the location of a station which has been operated. The electrical contractor may install an outlet box at each station location so that the service company may install their box or he may obtain the box bodies, generally at no cost, from the service company. This last makes a much neater job as the station box will not project as far from the wall.

The advantages of the service supplied by such a company over an interior system are that the signal reaches fire headquarters with little delay and that the system is more likely to be properly maintained and tested than a local system. Also the insurance companies generally make a greater reduction in premiums for an outside service than for a local system.

In most localities a reduction in insurance premiums is obtained by the installation of a fire alarm system which under certain conditions may be sufficient to pay for the cost of the system in a short time. Where no system is specified it may be to the contractor's advantage to take the matter up with the insurance authorities and to make a proposition on this basis if conditions warrant. Also systems are often designed by architects or others without consulting with the insurance authorities. If such a system is not satisfac-

tory to the insurance people the reduction cannot be obtained without making changes. For this reason it is to the best interests of the job at any rate to be sure that the fire alarm system meets the underwriters' requirements before installing the work, as a few additional stations or minor relocations may be all that is necessary to secure approval. Sometimes a building has twenty-four hour service and this feature has some bearing with insurance boards on reduction in rates for internal fire alarm systems.

Watchman Supervisory Systems

Watchman's supervisory systems may be of the portable or fixed clock type, of the make and break, push button or equivalent battery type or magneto type. The system may be local or the service may be supplied by a service company.

The portable clock type of system is not electric but is often furnished and installed under the electric contract. With this system a clock is carried by each watchman. In the clock is a paper dial which is rotated by the clock mechanism. At each station a key is installed in a small metal box and attached to the box by a chain. On reaching each station the watchman inserts the key in an opening in the clock thereby marking the paper dial at a point corresponding to the time at which the key was inserted. At the end of a round or tour of duty the chart may be inspected and will indicate whether or not all stations were visited and in what order.

This system has certain disadvantages but also decided advantages. The clocks are more liable to injury than with the fixed type. Theoretically a watchman can cut the chains and collect all the keys, sit in one place and insert the keys in the proper order, but this does not actually occur in practice and in any event would be discovered in a very short time by the cut chains. The advantage of this system to the owner if not to the electrical contractor is that no wiring is required and that stations may be added or moved at will at practically no cost, thus giving better supervision. The original cost of the system is but a fraction of the cost of an electrical system.

With the fixed clock system the clock or clocks are installed at some central location and are connected by wires to each station. One clock may be used for one or more watchmen. The sta-

tions may be push buttons or a contact device operated by a key, the system being supplied with battery current or each station may consist of a magneto with an opening in the cover plate for a key.

Both types are rapidly being superseded by the portable type. The battery type is not generally approved by insurance companies. Some companies give a somewhat greater insurance reduction for the magneto type than for the portable type, but this is not general. The advantage claimed for the fixed clock type over the portable clock type is that with a fixed clock the rounds of the watchman can be supervised at the time he is on watch by a person watching the clock. However this is not generally looked at until next morning any way, so that the advantage is doubtful. The disadvantage of the fixed clock type is high first cost for both the apparatus and wiring and the inflexibility for future changes or additions.

Outside and Local Service

In most localities insurance companies allow a greater reduction for a service supervised by an outside company than for a local service. With the outside service the signals are received at the office of the service company who watch these signals as they are received.

If any signal is not received when due the company reports the fact next day or if the signals cease they send a man to investigate. In this way if a man is taken sick or overpowered by burglars, for instance, the fact that he is not making his rounds will be known at once while with the local service it will not be discovered until next day unless there is someone on duty all night to check up.

The advantages of the outside service may be obtained at a less cost by installing a few outside supervised stations and the remainder of the inside type. If there are two outside supervised stations for each watchman, one at the start and one at the end of his trip, practically all the advantages of the outside supervision may be gained.

The conduit and wire for an outside service is generally installed by the electrical contractor as with the fire alarm system, also outlet boxes may be installed or box bodies may be obtained from the service company.

These systems are generally of the make and break type. Interior systems are seldom of this type.

As with fire alarms it is always well

to secure the approval of the layout by the insurance underwriters before installing a system unless this has already been done by others.

(To Be Continued)

CODE CHATS

By HUBERT S. WYNKOOP, M. E.

Monthly Discussion of National Electrical Code Practices by Well Known Authority in Charge of Electrical Inspection, City of New York

Fixtures For Gas-filled Lamps

The argument is now being put forward by those who seem to be in a position to know, that the usual means of ventilating globes of such fixtures causes more damage to the wire insulation than no ventilation at all. It is claimed that the chimney effect of the usual ventilation carries the heated air into intimate contact with the insulation. Therefore, it is argued, no ventilation at all is better, dependence being placed upon the radiating surfaces of fixture and globe.

Bell Ringers

In what manner is the usual bell ringer so different from any other appliance that it must be protected by its own cutout? Yet some inspectors call for such a separate cutout although the bell ringer is well under 660 watts.

Untaped Ends of Wiring

In dead-ending open work some wiremen make a practice of wrapping the end back upon itself and omitting the tape. There seems to be no good reason for demanding the tape if the location is one where exposed terminal receptacles would be permitted by the Code.

Determining Cable Sizes

From time to time one inspector after another calls attention to the difficulty of determining the size of a given cable without disconnecting it, and suggests that a table be prepared which would enable the size to be ascertained by caliper the cable over the insulation. Such a table would save considerable time in the long run; but I fail to see how it could be developed, as the external diameters of various makes of the same size of cable differ so widely.

Vent Flues as Wire Runways

We have been obliged to rule that vent flues, as from gas ranges, etc., are

not proper shafts or runways in which to place armored cables.

Similarly, we have actually had to rule that a 3-inch steam pipe is not a proper support for an armored cable, most securely lashed to it.

Grounding on Piping to Gasolene Tank

On the theory that the more bonding there is between various metallic substances in the vicinity of gasolene, there is no reason for objecting to the grounding of conduit or cable armor to piping leading to a gasolene tank.

Dough Mixers

Formerly these caused us much trouble; but today they are so constructed that motors and wiring are satisfactory in places where reasonably good housekeeping is observed. The baker rather than the machine needs our attention in order to insure a sufficient degree of cleanliness.

Corners on a Cleat Line

In turning corners in a cleat or knob line it is preferable to draw the wires taut diagonally from support to support rather than to bend them in the radius of a circle in order to maintain the $2\frac{1}{2}$ -inch separation and improve (?) the appearance. The distance between supports is so short that the standard separation between wires is not needed; and the absence of the curve in the line leaves no slack to cause trouble if the wire slips through its fastening.

Loose Wire in Cable Armor

In manufacturing armored cable, if the armor is applied too tightly the insulation may be injured, if too loosely the wire may slip out. Formerly, trouble was experienced with vertical runs of armored cable, where the wire had slipped down to such an extent that there were no loose ends at the upper outlet to which to connect the fixture. Consequently, underwriters' standard specifies that the wire shall not slip through a 10 foot length of armor when the latter is held firmly in position and a 60 pound weight applied to the wire. But inspectors should not judge cable by testing short lengths—say, 5 or 6 feet.

Porch Wiring

To what extent is a porch a "damp place"? This question is always before us. With a canopy type fixture and the wiring concealed between the ceiling and

the roof, there seems to be no great discussion; but with lantern fixtures or cord pendants we are obliged to object—particularly along the seashore—to a failure to employ moisture proof methods and fittings.

We will not approve the ordinary cord pendants; and yet we know that bungalow porches, luxuriously fitted up, are provided with the usual table portables designed for indoor use. We will accept drops of Canvasite, but we haven't found a way yet of getting people to equip their portables with Canvasite for porch use.

We have discouraged the use of chain fixtures or lanterns unless wired with Canvasite. And in a few cases, where we have accepted lead sheathed wire for a lead to a sign or a swinging lantern, we have been sorry because the lead cracks under the continual flexing. Altogether, Canvasite and a keyless weatherproof socket seem to be our best hope.

Tent Colonies

How shall we wire a tent? Canvasite cord with a Federal bushing where it passes through the canvas, is considered to give the best results. The cord may then be carried along the ridge pole and drops taken from it at the desired intervals. It is generally impracticable to install the usual service switch, so pin plugs connectors are accepted if installed just outside the tent but within reach. Such connectors afford an additional safeguard in case the tent should blow down.

Trolleys for Cloth Cutters

We are no longer accepting bare trolley wires installed in cloth cutting establishments. The cutters are now supplied by long cables hung from ball cord adjusters which are supported on messenger wires either by pulleys or slip rings. This later method works out well in practice and eliminates the former bare live wires.

Extension of Circuits in Buildings of Fireproof Construction

The circuit wiring in our large office and loft buildings has hardly been completed before the various tenants demand the shifting of outlets to meet their own particular needs. The Code prohibits conduit smaller than 1/2-inch, and the external diameter of this is greater than the thickness of the plaster. In many cases the tenant will not have

exposed work, and the owners are under the necessity of permitting the under side of the fireproofing to be channeled. This, of course, is a very objectionable procedure.

In an effort to meet the pressing demands for concealed extensions various expedients have been tried—lead sheathed duplex laid in plaster, oval duct and 1/4-inch flexible conduit. We have settled down to the following practice:

Under special permission in writing, given in advance, short concealed extensions may be made from existing branch circuit outlets in buildings of fireproof construction by means of 5/16-inch approved conduit containing one No. 14 rubber covered wire, provided each extension is confined to the room in which it originates, is laid on the surface of the fireproofing and is not run in concealed spaces.

Polarized Systems

Thomas Henry Day of New England Insurance Exchange Answers Important Questions

A number of important questions were asked Mr. Day after the presentation of his paper on polarized systems at the June meeting of the Hartford Electrical Club, copy of which was published in the July number of this magazine. These questions are typical of the many being asked concerning this subject at the present time, and are here published together with the answers as given by Mr. Day for the benefit of those who may be in doubt with regard to the many puzzling interpretations of the code relative to such systems:

Question: Is the concentric system of wiring a polarized system?

Answer: The Standard Wiring Rules of the United Kingdom has the following as a definition of a concentric system:

An earthed concentric system is one in which one of the conductors, known as the external conductor, continuously surrounds the other, which is known as the internal conductor. The external conductor, which is generally uninsulated, must necessarily be efficiently connected to earth and must not be of soft or easily corroded metal.

Because of the uninsulated outer conductor of a concentric system, the installation would be a polarized system, in that one conductor is readily identified and is continuous by means of fittings without transposition.

Question: Would polarization involve intricate installation problems?

Answer: No! The chief consideration would be that the polarized or identified wire would be continuous and without transposition throughout the installation. When making a tap the identified or marked wire should always

be connected to the identified or marked wire.

The only difference between such a system and our present practice, as I understand the problem, will be in the two colors on the insulation of the wire used in wiring. The fittings such as cutouts, panel board, etc., would be different from those of today in that but one fuse would be used on a branch or distributing circuit. This would be a problem for the manufacturers rather than one of installation.

Question: What is the special advantage of polarization?

Answer: The factor of safety would be greatly increased, in that all exposed live parts of a lighting system would be at zero with the earth.

Question: Would there be any advantage in using polarized sockets in a polarized system?

Answer: None whatever. With the shell of a metal socket at zero, with the earth, which it would be in a polarized system, there would be greater safety than would be possible, even with a porcelain socket, because the metal base of the lamp would be at zero with the earth.

Question: Would polarization result in the discontinuance of the use of insulating joints?

Answer: I am not a very strong advocate for insulating joints, their value in my opinion being somewhat questionable. In some inspection departments the use of insulating joints is not encouraged. At one time their prohibition by code rule came very near being adopted. With our grounded systems today one wire of the circuit is intentionally grounded, so in that particular the insulating joint becomes a negligible factor. This condition in regard to the intentionally grounded wire would not be changed with a polarized system.

Question: Would it be possible to use the present design of cutouts in a polarized system?

Answer: It would be possible but not desirable. Whatever medium was employed to close the space between the terminals of the fuse, should be permanently secured in position, that the polarized wire should never be broken.

Question: In a polarized system would it be permissible to use a two-pole knife switch, as a service switch, on a three-wire, 110-220 volt system?

Answer: Such practice would not be desirable. It is now a general practice to ground secondary systems and it

might be necessary to make a complete test of the entire installation, which test would be impossible without considerable effort should the neutral be solid through the switch. A three-pole switch should be used that all wires of the system may be disconnected should such need arise.

Question: What is the chief objection to a concentric system, one conductor of which being necessarily marked?

Answer: In spite of all that has been claimed for the success of the concentric system in England it has not been a success, either economically or in the light of safety. The outer conductor is bare and is of tinned copper, connections being made by a number of fittings, which, in time, produced connections of high resistance at the points of contact. Because of the bare conductor the concentric system would be a polarized system in that one conductor is identified.

Question: Should the marked or polarized conductor ever be broken by a single-pole switch?

Answer: Except at the service entrance and then only by the service switch the marked wire should never be broken by a switch or a fuse. Should the marked wire be broken, the very purpose of polarization would be defeated. You will recognize, should this wire be broken and the path to earth destroyed, in the event of an insulation breakdown and the shell of the socket become a potential above zero, in proximity to a plumbing fixture, for example, a person touching the socket and the faucet, at the same time, would receive a shock, even if the difference of potential was not above that of the secondary system.

Question: In a polarized system would it be possible to use a bare conductor on one side of the circuit?

Answer: In a properly grounded and polarized system, one side of the circuit is at zero with the earth. Such practice as suggested by the question has been tried in several installations. The railroad station in Washington, D. C., has a bare conductor on one side of the circuit, this being the grounded wire, and I have not heard of any adverse experiences.

The only reason that I can think of as discouraging such practice is that of psychology, or its possible influence upon a general practice which we have become accustomed to.

There is an installation in Provi-

dence, R. I., having a bare grounded return in a non-combustible building, the steel work being bonded similar to bonds on a railroad. Another installation in the same city is in a residence in which, in addition to the insulated ungrounded wire a bare grounded return is run through the conduit and connects to the conduit at each fixture outlet box. Each fixture has two insulated wires as usual, and one of these is connected to the bare return wire in the same manner as it would be attached to an insulated wire in the standard type of construction.

The first system is obviously not of general application, as the bonding of the members of the building had to be done during the construction and the method was expensive.

The second system in a way would seem less of a departure from existing practice and much more applicable than the concentric system. It would seem also to avoid the number of joints in series in the return circuit, which constitutes one of the serious faults of the concentric system. There has never been any particular desire to apply it to other buildings in Providence, and it would seem in general that there was little likelihood of being able to install this system for enough less in cost than the standard system to make its adoption an object.

Testing Elexits

Interesting tests on G-E type Elexits made by the Electric Outlet Company are shown by the accompanying illustrations, which demonstrate the strain withstanding qualities of these devices.

In the first of the tests, a man weighing 200 pounds, first chinned himself



This Was a Severe Test

several times with his weight suspended from a rope thrown over a hook screwed into an LX-501 plug attached to an LX-101 receptacle, and then put his knees against the wall and supported his weight from that position, as shown by the photograph. The Elexit showed no damage from the strain.

This was followed by a test of the ceiling Elexit. An LX-600 plug was plugged into an LX-200 receptacle and a heavy rope spliced over the hook. An attempt was first made to swing two



Proving the Potential Strength

men on the rope, but it pulled the brass hook open until the hook was almost straight. The weight was not sustained long enough to determine whether the continued strain would damage the plug or receptacle. Neither of them, however, showed any damage while as stated the cast brass hook was pulled open.

Another brass hook was then screwed into the plug, and one man swung on the rope suspended from it, as indicated by the illustration, without effect on the plug or receptacle.

These tests obviously represented a greater strain by far than any that would be imposed by the use of the heaviest lighting fixture in the average size room.

In the background of the photograph showing the test of the ceiling Elexit may be seen a lighting fixture attached to the side wall Elexit shown in the other picture.

Marketing vs. Manufacturing

In arguing that marketing costs are invariably higher than those of manufacturing, Professor W. D. Moriarty of the University of Washington says it requires more time and money and just as high skill to transport and display and keep proper reserves and educate the public as it does to manufacture.

ONTA
BRIT
COL
CONN
DIST
FLO
INDI
IOWA
KAN
LOU
SAC
BIRM
MOB
PHO
BERK
COV
LOS
OAK
SAN
VAN
DET
MAN
PUC
HAR
NEW
WA
JAC
MI
AT
E. C
DE
SY
LA
RO
SU
EV
IN
SO
W
D
S
W
T
V
L
P
G
S
I
U
MI

ORGANIZATION ACTIVITIES

STATE CHAIRMEN AND SECRETARIES

State	Chairman	Secretary	State	Chairman	Secretary
ONTARIO, CANADA:	Harry G. Hicks, 203 Church St., Toronto	J. A. McKay, 24 Adelaide St., W., Toronto	MARYLAND:	A. C. Brueckmann, Keyser Bldg., Baltimore	C. Philip Pitt, 7 St. Paul St., Baltimore
BRITISH COLUMBIA:	C. C. Carter, 739 Hastings St., Vancouver	P. F. Letts, 3044 Granville St., Vancouver	MICHIGAN:	Henry Roseberry, 41 Pearl St., Grand Rapids	H. J. Shaw, 613 Lincoln Bldg., Detroit
COLORADO:	J. Fischer, 213 15th St., Denver		MINNESOTA:	John M. Roberts, 1509 Selby Ave., St. Paul	Arthur P. Peterson, 2395 University Ave., St. Paul
CONNECTICUT:	Tryon Smith, 247 State St., New London	Geo. M. Chapman, 43 E. Main St., Waterbury	MISSOURI:	Oscar L. Fickie, Kansas City	A. J. Burns, 533 Delaware St., Kansas City
DISTRICT OF COL.	Frank T. Shull, Conduit Rd. and Elliott St. Washington	H. R. Harper, 635 D St., N. W., Washington	NEW JERSEY:	Geo. E. Davis, 23 Central Ave., Newark	Elmer D. Wilson, 23 Central Ave., Newark
FLORIDA:	T. E. Satchwell, Jacksonville	M. A. Ladd, 108 W. Bay St., Jacksonville	NEW YORK:	F. A. Mott, 29 St. Paul St., Rochester	F. M. Farley, 15 West 37th St., New York City
INDIANA:	T. F. Hatfield, 102 S. Meridian St., Indianapolis	A. I. Clifford, 507 Odd Fellows Building, Indianapolis	OHIO:	C. L. Wall, 212 S. Main St., Akron	Walter R. Keefer, 939 E. McMillan St., Cincinnati
IOWA:	Louis L. Corry, 510 Brady St., Davenport	Arthur Tucker, 619 Jackson St., Topeka	PENNSYLVANIA:	R. W. Keck, Allentown	M. C. Sellers, 1518 Sansom St., Philadelphia
KANSAS:	C. S. Smallwood, 1017 N. 5th St., Kansas City	R. S. Stearnes, 336 Camp St., New Orleans	TENNESSEE:	P. W. Curtis, Chattanooga	J. A. Fowler, 10 S. Second St., Memphis
LOUISIANA:	James M. Maloney, 807 Poydras St., New Orleans		WISCONSIN:	L. C. Ross, 1305 Tower Ave., Superior	H. M. Northrup, 25 Erie St., Milwaukee

LIST OF LOCAL ASSOCIATIONS AND MEETINGS

State and City	Local Secretary	Street Address	Time of Meet.	Place of Meet.	State and City	Local Secretary	Street Address	Time of Meet.	Place of Meet.
ALABAMA					NEWARK	Geo. E. Davis	23 Central Ave.	1st Monday	23 Central Ave.
Birmingham	I. E. Langer	1920 1/2 4th Av. N.	Wed. 8 p. m.	Members' Offices	Paterson	H. M. Desaix	88 Ellison St.	Last Friday	P. S. Bldg.
Mobile	Frank Sigler	Sigler Elec. Co.	Wed. 5 p. m.		NEW YORK				
ARIZONA					Albany	Chas. Russell	Box 390	3d Thursday	Pekin Rest'm
Phoenix	A. H. Rosenberg		Tues. 4 p. m.	Bldrs. Exc.	Binghamton	A. H. Hyle			
CALIFORNIA					Brooklyn	H. W. Walcott	12 Nevins St.	1st Mon.	Cham. Com.
Berkley	J. M. Gregory	Pacific Bldg.	Fri. 8 p. m.	Pacific Bldg.	Buffalo	E. P. McCormick	553 Wash. St.	Fridays	507 Elec. Bldg.
Covina	F. Rambo		1st & 3rd Mon.	Ontario	Cooperstown	B. B. St. John	Osonia	3d Tues.	Vanon
Long Beach	O. W. Newcomb	303 E. 4th St.	Tues. Ev'g.	Spaulding's	Endicott	A. H. Hyle	Binghamton	Tues.	Cham. Com.
Los Angeles	Irvin C. Bruns	118 E. 3d St.			Glens Falls	W. F. Combs	21 Main St. S.		
Oakland	J. Gregory	Pacific Bldg.	Tues. 8 p. m.	Pacific Bldg.	Jamestown	Henry Lund	309 Main St.	3d Mon.	M'gra. Ass'n
San Francisco	A. Elpins	165 Jessie St.	12 Noon, Thurs.	States' Cafe	Kingston	M. C. Rivenberg			
Van Nuys	Los Angeles Assn		Tues. 6:30 p. m.	Pin Ton Cafe	Nassau-Suffolk	H. J. Wick	Bay Shore		
COLORADO					New Brighton	E. L. Taylor	Tottenville		
Denver	L. B. Roberts	403 Mining Ex.	1st and 3rd Fri.	DG & EL Aud't.	N. Y. Sec. No. 1	J. P. Ryan	26 Cortlandt St.	1st Thurs.	Penn's Hotel
Manitou			Friday Nights	Col. Springs	Independent	C. J. Christensen	101 W. 83d St.	2nd & 4th Wed.	226 W. 58th St.
Pueblo	H. Ashcraft		2nd Tues.	Commerce Club	Sec. No. 3	L. F. Luedcke		Monthly	Various Stores
CONNECTICUT					Olean	H. C. Thuerk	Olean L.P. Co.	3d Thursday	
Hartford	Mr. Cook	Hart & Hegeman	1st Wed.	Hartford	Osonia	B. B. St. John	33 St. John St.	1st & 4th Mon.	Eagleston Hotel
New Britain	F. Mulvehill		On Call	192 Grand St.	Rochester	H. F. Janek	S. Glen Falls	2d & 4th Thurs.	'ara'ga & C. Fa's
Waterbury	D. Neth	Conn. Lt. & P. Co.			Saratoga Springs	W. F. Camp	McClellan St.	Subject to call	
DIST. COL.					Schenectady	Mr. Spengler	P. O. Box 809	1st & 3d Monday	
Washington			2d Thurs.	Dewey Hotel	Syracuse	H. N. Smith	Tottenville, S. I.	1st & 3d Thurs.	St. George, S. I.
FLORIDA					Troy	W. Taylor	First St.	1st Tues.	Gas Office
Jacksonville	W. L. Joseph	155 E. Forsyth	1st Tuesday	208 Realty Bldg.	Utica	Mr. Hall	Gray Elec. Co.	1st Tues.	Elks' Club
Miami	C. E. Pullen	Pullen-Zoll Co.			Westchester	I. W. Austin	White Plains	3d Fridays	Utilities Bldg.
GEORGIA					Watertown	L. B. Smith	Roth Block	Monthly	
Atlanta	Cheney Emerson	Irx & Baker Sts.	Thurs. 12:30	Dafodil Res.	Woodmere	Geo. La Salle	Westbury		
ILLINOIS					Yonkers	Mr. Mayer	Manor House Sq		
E. Moline	E. J. Burns	Rock Island	Once a month	Bldrs. Ex.	OHIO				
Chicago	J. W. Collins	179 W. Wash. St.	2nd & 4th Wed.	Lmbrms Ex.	Akron	L. C. Wall	2d Nat. Bk. Bldg	Monthly	2d Nat. Bk. Bldg
Decatur	E.O. Weatherford	114 E. Wm. St.	1st Wed.	Y. M. C. A.	Bellaire	J. Blumenberg	Bellaire	Call of Sec'y	Bellaire
Springfield	C. A. Meadow	407 E. Ad'm's St.	Sat. 2 P.M.	Arcade Bldg.	Cincinnati	W. R. Keefer	939 E. McMillan	Tues. 3 P. M.	Cham. of Com.
E. St. Louis	C. F. Broderick	317 E. Bro'd'y	1st & 2nd Tues.	Post Hall	Cleveland	Geo. D. Bury	Elec. League	1st & 3d Thurs.	Hotel Statler
La Salle	Ed. Blaine		1st & 3rd Mon.	219 18th St.	Columbus	O. A. Robins	Builders' Exch.	2d Wed.	Builders' Exch.
Rock Island	E. J. Burns	219 18th St.			Dayton	O. J. Osmond	41 Fountain Av.	1st & 3d Mon.	Bldrs. Exchange
Streator	Wm. Schroder	613 Tyler St.			Springfield	J. R. Yost		On call	Various
INDIANA					Stevensville	D. C. Hartford		1st Wed.	Nat. Ex. Bank
Evansville	I. A. Welburn	404 Main St.	Ev. Fri.	Y. M. C. A.	Toledo	F. J. Lucas	Builders Exch.	On Call	M'ts. & M'rs. As.
Gary	A. B. Harris	570 Washington	1st & 3rd Thurs.	Comm. Club	Youngstown	F. F. McBride		Mon. Noon	Y. M. C. A.
Indianapolis	G. L. Skillman	29 S. Capitol	1st Tues.	B. & T. Ex. Bldg	OSKON				
South Bend	Mr. Moran, Jr.	832 N. St. Louis	Wed. Ev'g.		Portland	F. R. Whittlesey	212 Henry Bldg.	2d & 4th Monday	Cham. of Com.
Warsaw	F. E. Strauss	120 W. Market St			PENNSYLVANIA				
IOWA					Allentown	A. Hill	Bethlehem	Monthly	
Davenport	Louis F. Cory		Mon. 6 p. m.	Chamber Com.	Bethlehem	A. H. Hill	510 W. Main St.	Last Thursday	
Sioux City	F. H. Abbot		Mon. 6 p. m.	Jackson Hotel	Catawauqua	W. T. Kleppinger		Monthly	
Waterloo	H. L. Hileman	600 Bluff St.			Dubois	C. E. Blakelee	Bethlehem	Monthly	
KANSAS					Easton	G. E. Hill	Bldrs. Exch.		
Topeka	H. S. Lee	816 Kansas Ave.	Mon. Noon	Elk's Club	Erie	Earl Stokes			
Wichita	L. A. Harris	446 N. Main	Ev. Tues. 7:30	United Elec. Co.	Lancaster	A. Deen	1518 Sansom St.	3rd Friday	Bldrs. Exch.
KENTUCKY					Philadelphia	M. C. Sellers	McCance Bldg.	2nd Thurs.	Und'w't's Office
Louisville	Walter Diecks	528 W. Jefferson	2-4 Thurs.	B. of T. Bldg.	Pittsburgh	Joe Jaques	Bd. of Tr. Bldg.	1st Friday	Various
Paducah	W. R. Kitterjohn		Last Thurs.		Scranton	A. J. Fowler	Dubois	Tues.	Zenke's
LOUISIANA					St. Marys	C. E. Blakelee	E. King St.	Mon.	
New Orleans	R. S. Stearnes	336 Camp St.	1st Weds.	Teocalli Hall.	YORK	A. E. Harris		2d & 4th Tues.	
Shreveport	Percy Elliott	Elliott El. Co.	Ev'y Monday		SOUTH CAROLINA				
MAINE					Columbia	E. L. Cashion	Sumter, S. C.		
Portland	N. S. Bothing	222 Middle St.	On call		Greenville	E. C. DeBruhl	Ideal Elec.		
MARYLAND					TENNESSEE				
Baltimore	C. P. Pitt	7 St. Paul St.	3d Tues.	Eng'rs. Club	Chattanooga	Carl Schneider	412 Kirby Av.	Wednesday	Manhattan Cafe
MASSACHUSETTS					Knoxville	H. M. Moses	615 Market St.	Noons	Rwy. Lt. Co.
Boston					Memphis	H. A. Street	285 Madison Av.	Monthly	Allys Cafe
Fitchburg	R. M. Gowell		3d Thurs.	Boston City Club	Nashville	J. B. Mullen	Arcade	Ev. other Wed.	Tularia Hotel
Haverhill	H. W. Porter	24 West St.	1st Mon.	Fay Club	TEXAS			1st & 3d Wed.	
West Medford	H. J. Walton	Malden El. Co.	2d Mon.	El. Lt. Sta.	Dallas	H. A. Brewster	409 S. Eway	On call	409 S. Eway
Worcester	L. H. Treadwell	681 Main St.	Monthly	Various	UTAH				
MICHIGAN					Salt Lake City	Gus. Forsberg	69 E. 4th So.	Wed. 12:15 p.m.	Newhouse Hotel
Battle Creek					LYNCHBURG				
Detroit	H. Shaw	613 Lincoln Bldg	Ev'y oth'r Tues.	Post Tavern	Norfolk	W. M. Elliott	Lynchburg	1st Wed.	Local Stores
Flint	J. Markle	718 S. Saginaw	Last Thurs.	G. A. R. Hall	Richmond	K. D. Briggs	Arcade Bldg.	Wednesdays	Old Col. Clb.
Grand Rapids	Henry Romyn	40 Ionia Av. N.W	Tues. Noon	Ass'n of Com.	WASHINGTON	W. A. Cutlett	Jeff. & Grace Sts		
Kalamazoo	M. Randall	Exch. Place		Cham. Com.	Seattle	J. R. Barry	Pantorges Bldg.	Thursdays	Elks Club
MINNESOTA					Green Bay	John B. Tingley	223 Cherry St.	1st Thurs.	Nicolet Bldg.
Duluth	Alfred L. Foster	210 W. 1st St.	1st Tuesday	Builders' Exch.	Milwaukee	Thos. W. Nixon	719 Maieatic Bld.	2nd Tuesday	Maryland Hotel
Minneapolis	A. P. Peterson	2395 University Ave., St. Paul	2d & 4th Tues.	Elk's Club	Racine	F. H. Patrick	1545 W. Blvd.	1st Tues.	Racine Bldg.
St. Paul	A. P. Peterson		6:30 P. M.	University Club	CANADA				
MISSOURI					Quebec	G. E. B. Grinyer	43 Quebec St.		
Kansas City	R. L. Hutton	212 Admir'l Blvd	Tues. Evs.	Am. Hotel	Hamilton	K. J. Donoghue	c/o N. Elec. Co.		
St. Louis	Ben Grieb	994 Pine St.	1st Wed.		Kitchener	O. S. Lyles	c/o Doerr El. Co.		
NEBRASKA					Ottawa	A. C. McDonald	128 Osgoode St.	Mon. 8:00 p.m.	Elec. Insp. Office
Lincoln	G. C. Kingham	142 S. 12th St.	1st & 3d Mon.	C. of C. Bldg.	Toronto	J. A. McKay	24 Adelaide St.	2d Tues.	Bd. of Trade
Omaha	J. B. Coningham		1st & 2nd Mon.	Various	Vancouver	P. F. Letts	3044 Granville St.	Ev'y Tuesday	724 Pacific Bldg.
New HAMPSHIRE					Windsor	A. H. Cook	609 Moy Ave.		
Portsmouth	F. C. Hatch	Kittery	2d & 4th Wed.		Niag'ra Penins'l.	W. H. Mackenzie	St. Catharines		
NEW JERSEY									
Atlantic City	F. P. Wright	16 Ohio Ave.	1st Thursday	Malatesta Hotel					
Jersey City	Wm. Doellner	743 Bergen Ave.		P. S. Bldg.					
Long Branch	Chas. Maggs	462 Bath Ave.	1st & 3rd Mon.	Comm. Hotel					

Vacations at Headquarters

Don't forget that National Headquarters will be closed from August 14 to August 26! As announced, these two weeks will be given employes as their vacation period, and as the list includes everybody the offices will be closed.

This custom was established as a precedent two years ago by order of the executive committee and it has worked so well that the committee has not seen fit to go back to the old idea of giving separate vacations.

Therefore it is requested that all matters normally requiring attention between the 14th and 26th of the month be taken up with National Headquarters before the 14th of this month, if possible, so that settled action may be taken before the offices are closed.

Why an Electragist

Value in Being One Shown Now That Trade Mark Rights Are Secured by National Association

Necessity is the mother of invention the same as invention is the forerunner of progress. These truths need no explaining, but when we learn that an electrical contractor-dealer has evolved into an Electragist some may wonder whether the movement is too rapid or a natural evolution.

What do you think about it, Mr. Member of the National Association of Electrical Contractors and Dealers? Do you like the idea of being an Electragist, or didn't you know you are one? Well you are, and if you're undecided as to whether it makes your business any better, or whether by being thus designated you are merely made somewhat of a Greek in character, we are going to tell you some convincing facts you perhaps have never thought of with regard to the new name.

Perhaps you are not clear as to just how the word came into being and what it stands for, despite the wide publicity devoted to it in the last year or so which has resulted in its being used with increasing popularity in many sections of the country.

Ever since retailing became a logical part of electrical contracting and those in the business were known as electrical contractor-dealers, there has been a growing feeling that a new name should be given this important branch of the electrical industry, a name more concise and easily spoken than this four worded tongue twister.

Considerable thought was devoted to

the matter and finally M. H. Johnson of Utica, New York, hit upon a term that would fill the bill. It will be recalled that he was one of the original forty-niners who met in Buffalo in 1901 to form what is now the National Association, and perhaps it was due to this fact that he had the rare acumen to conceive the word that bids fair to mean so much to the consumer of things electrical.

Anyway he with the help of Dr. Robert M. Yerkes of the National Research Council, and Professor Henry S. Washington of the Geophysical Laboratory, Carnegie Institution, Washington, D. C., was able to derive the word Electragist, philologically correct, from the Greek to mean Electrical Contractor-Dealer.

Formal action was first taken concerning the word at the National Association Convention at Buffalo last year. At that time Mr. Johnson read a paper before the general session in which he explained the derivation of the word, how it could be used to advantage, and requested that it be adopted by the National Association for its exclusive use.

After careful consideration it was voted to so adopt the word Electragist and a resolution was passed to that effect. Thereupon General Counsel Franz Neilson proceeded to seek the means of protection called for in the resolution, and since that time Mr. Neilson has been in constant touch with the matter. He and his consultants made exhaustive researches of the trade mark, patent, and copyright laws and found that the word Electragist could only be protected by causing it to be registered as a trade mark.

It was decided by the Publication Committee in whose hands power to act was left according to the resolution that this should be done, and to this end every endeavor has been made. Meanwhile it was thought best that members be urged to use the word in order to bring the public to understand that an electragist by being an active member in good standing of the National Association of Electrical Contractors and Dealers is more than electrical contractor dealer.

Legal action has been necessarily slow and it has taken the past year to clear away the many intricacies found in this an instance of untried trade mark jurisprudence. Announcement is now made, however, by the patent office through the general counsel that the registration has gone through satisfactorily. So it is now proposed that a license be issued

to each member of the National Association as soon as possible giving them the legal right to use the new name. This will be done following the action to be taken at the annual convention in October with reference to the change of title of the organization as set forth in the proposed amendments.

Now let us see the advantages of being an electragist. There are advantages, advantages of the best kind, those that grow with the passing of the years. First you are reliable. Safety, quality and comfort are paramount in the service you render. You constantly strive for the best kind of business because you are a member of your National Association whose sole aim and purpose is to promote and make possible the most efficient business dealings between its members and the public. Your methods and practices are the least wasteful.

As an Electragist you are immediately recognized and distinguished from a mere electrician, the carpetbagger, the curbstoner. The man on the street knows you are a real business man because you have subscribed to and are endeavoring to enforce the highest business principles that go hand in hand with the right to use the name.

So now proclaim the glad tidings to the world! Tell everyone you meet that you are an Electragist! This will identify and establish you with the public as nothing else can.

Canada Meetings

The Ontario Association of Electrical Contractors and Dealers has decided to hold its annual convention at Toronto on November 13 and 14. C. H. Hopper of the Canadian Westinghouse Company has been appointed chairman of the arrangements committee and on his tentative program he has already shown some surprises which bid fair to materialize to the great delight of all who attend.

On June 22 a meeting of the executive committee was held at the Hotel Clifton, Niagara Falls, at which time the date of the annual convention was decided upon. During this meeting K. A. McIntyre, past chairman of the association was presented with a very handsome gold watch fob, suitably engraved, by H. Hicks on behalf of the members of the association. Mrs. McIntyre was also presented with a silver flower vase.

J. A. McKay, secretary-treasurer, advises that the next meeting of the executive committee will be held at Windsor

on October 10, and that the delegations to attend the National convention at Cincinnati will be enroute at that date.

Advice is received that at the organization meeting of the Ottawa district on July 4 the following officers were elected: Chairman, L. Donnelly; secretary-treasurer, A. C. McDonald; special representative, H. L. Allen. At this meeting fourteen applications for membership were received.

Duluth Interests Meet

On the evening of July 7th a meeting of all of the electrical interests of Duluth was held at the Commercial Club under the auspices of the Duluth Electrical Contractors' Association, with about twenty five men present. Besides representatives from practically every contractor-dealer firm in the city, representatives were present from the Duluth-Edison Electric Company, and from each of the Duluth jobbing houses.

The meeting was called to listen to talks given by Arthur P. Peterson, secretary of the Minnesota Association of Electragists, and Laurence W. Davis, special representative of the National Association.

Mr. Davis told of the work which is going on all over the country through the Association in the study of better business practices by the contractor-dealers and the great need for continued effort along those lines to overcome the destructive competition now going on following the business depression of the past year.

Mr. Peterson gave a very interesting talk which was followed with intense interest by all of the men present, outlining the work which has been carried on during the past two years by the Minneapolis and St. Paul Associations, in the studies resulting in the manual of estimating and detailed studies of unit quantities of labor and material required for the various operations of residence wiring in both knob and tube and conduit work. Mr. Peterson told of the long effort needed before sufficient co-operation was secured to make effective these studies, but his report on the results accomplished and the thorough confidence established in such work was an inspiration to the Duluth men.

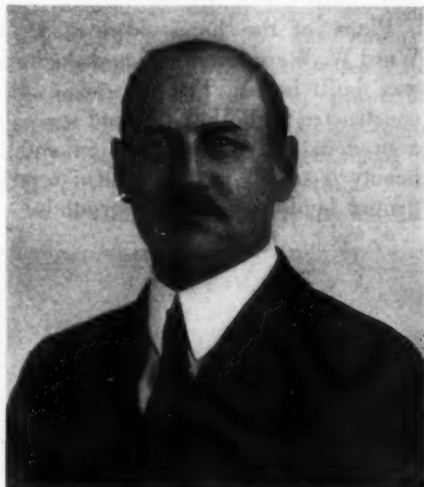
Mr. Peterson offered the services of the Minnesota Association to bring about similar condition in Duluth and at a nominal cost to the industry there and the proposition was received enthusiastically by the Duluth electrical men

and the promise of support from all branches of the industry there was given towards any constructive work which they might undertake. It was voted to hold another meeting on the following Monday evening and complete the plans for carrying on the work.

Colonel Miller to Speak At National Convention

United Typothetae Secretary Will Deliver Important Address at Meeting in October

One of the outstanding features of this year's convention of the National Association to be held at Cincinnati in October will be the inclusion on the speakers' program of Colonel Edward T. Miller, secretary of the United Typothetae of America, the national as-



Colonel Edward T. Miller

sociation of employing printers in this country. The topic of Colonel Miller's talk will be "How An Employers' Association Functions."

In giving this important address it is expected that the speaker will comb the subject from stem to stern in order to show what great advances have been made in the printing industry within the last twenty years due to the ever widening influence of the employing printers' national association. He will explain in a most interesting manner the many forward steps that have been taken by this organization to promote through modern methods and practices the ever present puzzling question such as cost finding, estimating, and overhead to their present recognized highly efficient status.

This address will prove especially interesting to electragists as the functions of the employing printers' association are similar to the aims and purposes

of the National Association of Electrical Contractors and Dealers since both organizations are alike confronted with the problems of union and non-union labor employment. It will be remembered that in adopting the proposed amendments to the constitution the members of the executive committee looked to the United Typothetae for the most efficient plan of labor sectioning.

In taking up the question of estimating, Colonel Miller will have much to say that will be of direct and immediate value to electragists, inasmuch as the new Manual of Estimating for contractor-dealers now being completed will probably be distributed to members some time this month, so there will be ample time to study it prior to the convention, and comparisons can be made that will result in the saving of time and money in the use of the book. Colonel Miller is well equipped to talk on the subject assigned to him as the following facts will show: He has been connected with the printing and publishing business since he was sixteen years old and has brought to the United Typothetae a broad experience as a business executive, printer, editor, publisher, and trade organization secretary.

He served in the Spanish American war on the staff of Major General J. Warren Keifer, as an aide-de-camp, and in the spring of 1903 was appointed assistant adjutant general of the state of Ohio by Governor Geo. K. Nash. The next January Governor Myron T. Herrick made him chief quartermaster of the state, in which capacity he served under three other governors until he resigned in 1911 after eight years of continuous service in the business branch of the state's military establishment.

In addition to his military projects Colonel Miller was also interested in various printing and publishing enterprises all during this period. He first became prominent in the printing industry as chairman of the First Printers' Cost Congress of Ohio in 1912, taking an active part thereafter in the Ohio State Printers' Federation.

He entered the United Typothetae in January, 1918. He is devoted to the cause of the employing printers' association, believes in its mission, sees it as a great industrial engineering institution giving unlimited service to its members and with his genuine optimism combines sound business sense.

Electragists will profit by hearing Colonel Miller's talk at Cincinnati.

Get ready for the big convention! See you at Cincy!

Association Organized

More than thirty electrical contractors and dealers met at a dinner in Ottawa, Ontario, June 21, given by the local branches of the Canadian General Electric Company and the Northern Electric Company. A. A. Dion of the Ottawa Electric Company acted as toastmaster and in his remarks following the banquet he welcomed the organization of a contractor-dealers association in that city.

Sixteen of the firms represented signed papers after the meeting to organize a local group and a dozen other firms signified their intention to affiliate with the work when it was organized. It was voted to hold another meeting within a few days and to take up at that time the completion of the organization and the election of officers for the ensuing year.

Special Representative Davis and K. A. McIntyre of the Society for Electrical Development addressed the meeting. Mr. Davis talked on the subject of greater development of the contractor-dealers' business through mutual study and exchange of ideas on the conduct of their business, and illustrated his address with a wealth of figures aided by the use of a blackboard.

Mr. McIntyre told of the form of organization and the work of the Ontario Association, which during the last two years has grown to such strong proportions throughout the province. He appealed to the men present to form an Ottawa branch to take up the many opportunities for better business development which it would afford, and his remarks greatly influenced the vote to organize the local association.

New Jersey Meeting

The semi annual meeting and convention of the New Jersey State Association will be held at Wannamassa Garden, Asbury Park, on August 5. While memories tingle with happy recollections of last year's affair the committee look forward to a greater affair this year.

The schedule of events shows that after a lunch a business meeting will take place after which a talk on radio entitled "The Great Topic of the Day" will be given. The meeting will adjourn at 4:30 to witness a ball game

and at half past six dinner will be served. In addition to dancing during the evening further pleasure will be derived from the occasion by the ladies who will be given a motor boat trip during the afternoon.

Syracuse Has Electric Home

Every Kind of Device Was On Display at Two Weeks' Showing of Model Dwelling

Called a model of modern electrical equipment, the electrical home at Syracuse, New York, opened wide its doors on June 19 and welcomed the public to examine every interesting feature from cellar to attic. It was ideally located and received the citizens of Syracuse as guests for a period of two weeks from two o'clock in the afternoon until ten in the evening.

Plans of the home were made by Ward W. Ward, architect, and the house was built by A. F. Sanderson. It is constructed of hollow tile and stucco in a modern and original design and its beauty is set off in a delightful way by proper landscaping of the grounds.

Inside it was well furnished and has a large number of convenience outlets. As the visitors entered a guide took charge of a group and explained in an interesting way every detail and feature. This exhibition was informal and every onlooker was made to feel as if he were being shown through the home of a friend.

A unique dining table shows a most interesting arrangement of wiring that permits the use of several devices at once without complication of cords. A single connection is made from the table to a special floor outlet.

In the kitchen an electric range makes cooking a delight with its easy control and convenience. An electric washer takes away all the drudgery of washing dishes.

The basement is well lighted and contains the most practical equipment for a small home laundry. In the bedrooms new ideas and conveniences are found that most people have never thought of.

The building was constructed under the auspices of the Electric Home Association, an organization of the leading



Group of Prominent Citizens at Opening of Electric Home at Syracuse, N. Y., Standing at Side Door of New Building

August

electra
ley wa
mittee
mittee
Harvey
on fina
man c

Qu

How
not ke
ing ex
trical
Specia
Davis
the m
Assoc
The
the cl
spoke
ing a
Vice
cupie
repre
in at

M

Th
made
annu
Assoc
sipp
It
man
Char
who
will
liste
argu

T
indu
exe
Ele
He
lica
A
ing
ma
Th
inc
ins
mo
etc
ye
po
ha
pu
re
of

electragists of Syracuse. A. Dean Dudley was chairman of the publicity committee, M. H. Salmon, chairman, committee on equipping and furnishing, Harvey N. Smith, chairman, committee on finance, and N. Brewster Hall, chairman committee in charge of exhibits.

Quebec Association Meets

How destructive competition through not keeping track of overhead and selling expenses caused losses in the electrical supply business was the theme of Special Representative Laurence W. Davis in the course of his talk before the meeting of the Province of Quebec Association on June 19.

The special representative, who was the chief drawing card on the program, spoke to a large audience at this meeting and was moved a vote of thanks by Vice President J. A. Anderson who occupied the chair on this occasion. A representative number of members were in attendance.

Mississippi State Meets

The live wires down south certainly made good their boasts about the bi-annual meeting of the Mississippi State Association held at Gulfport, Mississippi, July 18 and 19.

It was a snappy meeting indeed and many turned out to hear Samuel Adams Chase of the Westinghouse Company who was the main speaker. The good will promoter held the attention of his listeners to the last with his rapid fire arguments for harmonizing the industry.

New Rulings of Society

Two things of special interest to the industry transpired at the meeting of the executive committee of the Society for Electrical Development held at Staff Headquarters in June concerning publication service and calculation of dues.

Any individual desirous of subscribing to the society's publication service may do so at an annual fee of \$25.00. This new ruling, while not entitling the individual to membership in the society, insures his receiving a copy of all monographs, booklets, printed statistics, etc., issued by the society during the year of subscription. This change of policy is a welcome one as the society has embarked upon a very excellent publication program and has already received numerous requests for copies of its recent publications.

A change in the bylaws has been put

into effect which will do away with the present cumbersome method of calculating dues. This simplification will be appreciated by members and by reducing clerical work at headquarters will effect a material saving of expense.

Getting New Business

As an example of his ability to get some mighty fine new business even in these times, A. Penn Denton, who heads the Denton Engineering & Construction Company of Kansas City and is also the Code committee chairman for the National Association, advises that during the month of June a contract was closed with the Washburn Crosby Company of Minneapolis for the complete electrical installation in its newly acquired Kansas City mill and elevator. This installation for probably the largest milling concern in the country covers complete electrical equipment for two unit mill and elevator plant including the lighting, the intercommunicating telephone system, and a 2,000 h. p. installation of motors.

Mr. Denton says his company has had the privilege of installing some of the largest installations of motor equipment in industrial plants in Kansas City and the adjacent territory during the past fifteen years, but this is one of the best single installations it has ever handled.

The Code chairman sounds an optimistic note with reference to building conditions in his territory as the following quotation from a recent letter from him testifies: "There is a decided improvement in building conditions throughout this territory during the past

sixty days, and judging by the outlook in the offices of the architects and engineers in the city we are just entering the greatest building era this section of the country has ever seen."

Southern Idaho Convention

The midsummer convention of the Southern Idaho Association of Electrical Contractors and Dealers will be held at Hailey, Idaho, on August 25 and 26. President George Pickup expects to have a big affair and has arranged an elaborate program.

Special Representative Davis of the National Association and K. A. McIntyre of the Society for Electrical Development will be in attendance and will tell this live body of westerners all about their 10,000 mile trip, its purpose from the standpoint of the National Association, and its value to the membership.

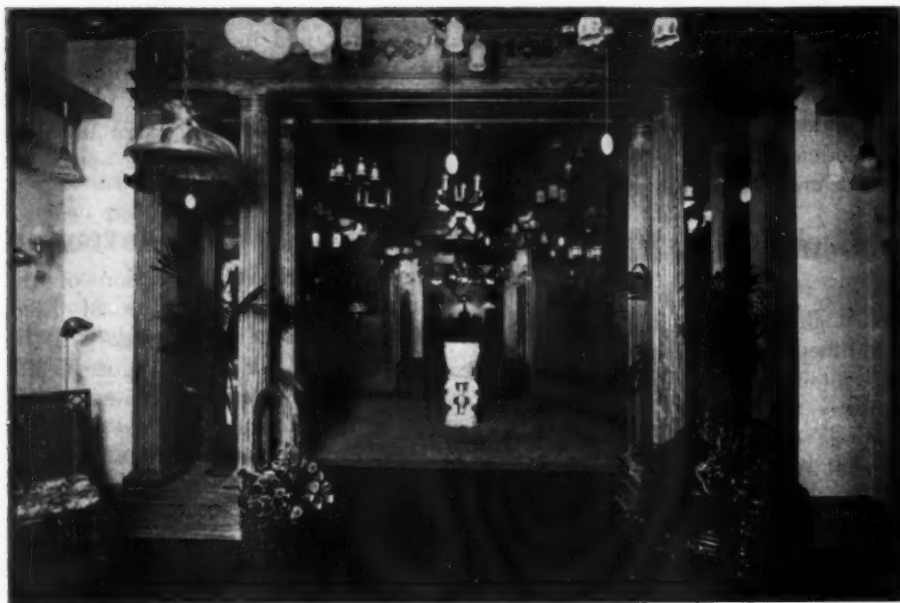
Issues New Booklet

"Thirty Years of Successful Accomplishments" is the appropriate title of a new booklet issued by the Sanborn Electric Company of Indianapolis setting forth a complete record of the company's accomplishments since it was established. This is a fine specimen of contractor dealer advertising.

In the foreword which contains an explanation of the high quality of work done by the Sanborn organization five elements are laid down as necessary to the success of any electrical company as follows: 1. The right kind of experience; 2. The right human equip-



This Pleasant, Businesslike Department Has On Display Every Type of Electrical Utility



Spacious Fixture Rooms Which Contain Myriad of Most Artistic and Ornamental Furnishings

ment; 3. The right financial equipment; 4. The right mechanical equipment; and 5. The right staff of executives to supervise the work.

The experience of the executives is set forth and pictures beautifully reproduced show the spacious offices and show rooms and tell the story of the establishment in graphic form. Other illustrations show pictures of buildings in which representative installations have been made.

The entire booklet is a comprehensive example of contractor advertising and is rather unique since the contracting end of the electrical business is difficult to advertise in a way that reaches the prospective customer.

Another Electric Home

One of the most novel and interesting exhibits of the year will take place in the opening to the public on August 1 of the electric home at Atlantic City. This home which is a \$10,000 bungalow erected on the decking of the Million Dollar Pier has been built under the auspices of the National Advertisers' Exposition in cooperation with the Atlantic City Electric Company and a representative board of electrical experts. It will be open for public inspection until September 15.

As the Million Dollar Pier is the largest over the ocean amusement establishment in the city the display will permit of a hundred or more devices of every description that will emphasize the big part electricity can play in enabling the average family to live in

solid comfort at minimum exertion insofar as the conduct of the household is concerned.

The idea of the home was conceived by A. Conrad Ekholm, past president of the Avenue Hotel Men's Association, during the convention of the N. E. L. A. in May, and a board of delegates to the meeting drew up and finally approved the plans for the exhibit. A prominent realtor was so pleased with the plans of the bungalow that he has purchased it and will rebuild it at the close of the exposition on an exclusive site in the residential section of the city.

West to Have Exposition

The Rocky Mountain Electrical Exposition, a precedent setting event for the intermountain country, is scheduled for October 2 to 14 at Bonnaville Park, Salt Lake City, Utah. It will be held under the auspices of the Rocky Mountain Electrical Coöperative League and will have the active support of electrical interests, commercial bodies and educational institutions of a half dozen states.

The time and the place of this great affair are both significant. Never before in the history of the Intermountain west has an exposition of such immense scope been held. It is the first real opportunity to bring together in the recognized distributing center of this rich and vast territory the manufacturer, the jobber, the contractor-dealer, and the central station with the ultimate buyer.

The aims of the exposition briefly stated are: First to educate the public

in the advantages of the use of standard and trade named electrical appliances; and second to introduce the latest and best devices for home and industrial application. The exhibits will include every kind of electric equipment from an automatic toy to high powered radio apparatus.

A great regional arch artistically lighted by electricity will be erected for the occasion on which will be emblazoned emblems of the commonwealths immediately interested; viz., Montana, Wyoming, Idaho, Colorado, Utah and Nevada. This electric display will be the chief advertising device of the exposition, although other means of publicity commonly employed will be used. W. D'A. Ryan of the General Electric Company is in charge of the work of erecting this arch.

Cost Record Books

The second edition of the Cost Record books used by the Electrical Estimators Club of Greater New York for the purpose of obtaining accurate labor costs, has recently come from the press. A number of improvements have been made as a result of the experience gained with the first set of books and it is felt that the books in their present form will be found very useful.

Anyone wishing to obtain copies at one dollar each should communicate with the secretary, A. Greenblatt, c/o The Unit Electric Co., 415 East 19 Street, New York City.

Opens New Office

Vincent Gray, who has been secretary of the Standard Electric Construction Company of New Orleans, has made arrangements to open an office to handle the products of the manufacturer. Mr. Gray is of the opinion that Central and South America and Mexico are anxious to do business through New Orleans, and he believes the city itself is going to grow because of this business. He advises that only high grade products will be considered and the most liberal arrangement favored.

Mr. Gray has had twenty five years' experience in the electrical field, fifteen of which have been spent in the City of New Orleans. He has been a valuable addition to the staff of Colonel Stearnes' company in the past and it is with mutual regret that he leaves his present position to take up the work that he believes will bring to him added success.

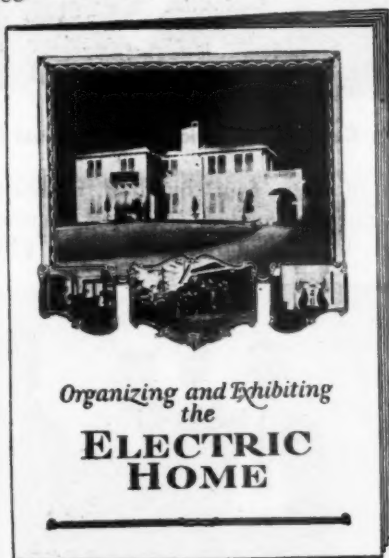
Hold Beach Party

With seventy members and guests present, the Electric Vehicle Bureau, metropolitan district N. E. L. A., held a shore outing on July 11. The afternoon was spent at Manhattan Beach with swimming and a ball game as the attraction, and the evening was spent at Tappens Inn, Sheepshead Bay, where a shore dinner was enjoyed.

The Electric Vehicle ball players defeated a scrub team 13 to 11 and in the dinner came out victorious over a whole mess of clams, lobsters, fish and other salt water delicacies.

S. E. D. Issues Monograph

The Society for Electrical Development has issued a monograph on "Organizing and Exhibiting the Electric Home" which deals with the subject very comprehensively from the formation of the committees to the closing of the exhibition. An historical foreword, placing the date of the first real electric home as far back as 1882 and giving other results of a careful research, will be of interest. This booklet is in the nature of a reference book and will be invaluable to leagues who have already put on electric homes and others contemplating them. To the former it will suggest ideas which may be incorporated



Drawing is Here Greatly Reduced

in the future homes. To the latter its value will be apparent from the statement in the foreword that it may save them much unnecessary preliminary work and assist them in avoiding possible pitfalls.

The booklet, in its sixty-four pages, contains illustrations of many electric homes and a chart giving an analysis

of the details of seventeen successful homes in this country and Canada. A map and list of homes which have already been exhibited and others contemplated visualizes the extent to which this medium has been used throughout the country as a means of educating the public to Do It Electrically. A page of statistics will also be found of exceptional interest.

Plan 10,000 Mile Trip

Field Men for Electragists and S. E. D. Will Do Team Work in West

Laurence W. Davis, special representative of the National Association of Electrical Contractors and Dealers, and Kenneth A. McIntyre of the Society for Electrical Development, will travel over ten thousand miles during the months of August and September and will hold meetings in about twenty-five cities in the interest of the two organizations represented.

It is a new idea for representatives of these organizations to travel together and hold joint meetings but it is believed that the plan will work very satisfactorily. The general subject of Mr. Davis' talks will be: "Building the Business of the Electragists through Association," covering the practical results attainable by the electragists through association with other men in the business, both fellow electragists, central station men, jobbers, and others, and will deal with the practical applica-

tion of association work. Mr. McIntyre's topic will be: "Publicity by Coöperation" and doubtless he will base his speeches largely on the work of the Society.

Mr. McIntyre says he is going to study the work of coöperative leagues where they have been established in the cities visited, and where there are no such organizations he is going to help form them, comprised of the various electrical interests. He is going to make contact with the members of the Society and see to it that they take advantage of the Society's service.

The Society's representative advises he will also confer with newspaper editors to find out what kind of material supplied is satisfactory and try to induce them to give the electrical industry still more publicity.

Mr. McIntyre's efforts are expected to prove unusually beneficial in conjunction with the work of the special representative as both organizations have a common task and the united endeavor of the two men should be augmented on this account. All are aware of the splendid work done in the past by Wm. L. Goodwin and Samuel Adams Chase in spreading the gospel of more and better electrical business through the industry generally, and the results of this new idea of traveling representative coöperation should go far toward developing renewed interest.

So far as the itinerary has been arranged it is published herewith:

Dates in Cities	Cities	Time of Meetings
July 31	Fort William, Ont.,	Monday, July 31.
August 1-2	Winnipeg, Manitoba	Tuesday eve, Aug. 1.
August 3-4-5	Regina, Saskatchewan	Thursday eve, Aug. 3.
August 8-9-10	Calgary, Alberta	Tuesday eve, Aug. 8.
August 14-15	Vancouver, B. C.	Monday eve, Aug. 14.
August 16-17	Victoria, B. C.	Wednesday eve, Aug. 16.
August 18-19	Seattle, Wash.	Friday eve, Aug. 18.
August 21	Tacoma, Wash.	Monday eve, Aug. 21.
August 22-23	Portland, Oregon	Tuesday eve, Aug. 22.
August 25-26-27	Hailey, Idaho	Aug. 25-26, convention of So. Idaho Ass'n of Elec. Contrs. & Dealers.
August 31-Sept. 1-2	Salt Lake City, Utah	Thursday eve, Aug. 31
September 5-6-7-8	San Francisco, California,	Dates to be arranged.
September 11	Fresno, California	Monday noon, Sept. 11.
September 12 to 16	Los Angeles, California	Dates to be arranged.
September 19	Phoenix, Arizona	Tuesday noon, Sept. 19.
September 20	El Paso, Texas	Wednesday noon, Sept. 20.
September 21-22	Albuquerque, N. M.	Thursday eve, Sept. 21.
September 23	Pueblo, Colorado	Saturday noon, Sept. 23.
September 24-25	Colorado Springs, Colo.	Monday eve, Sept. 25.
September 26-27-28	Denver, Colorado	Dates to be arranged.
September 29-30	Kansas City, Missouri	Friday evening, Sept. 29.

Championship Sales Contest

The winner of the \$1,000 prize in a midsummer sales contest now being conducted by The P. A. Geier Company of Cleveland will be acclaimed world's champion retail cleaner salesman, according to Carl M. Randel, salesmanager of the company. "We expect that the man who is awarded this prize will make a record for retail sales that will eclipse any previous performance known to the industry," he declares, "and until someone can present evidence of a better performance we will claim the title of world's champion for the winning Royal salesman. Other electric cleaner manufacturing organizations who may question our right to this

The Royal sales contest has attracted wide attention outside the electrical trade as well as within. *Printer's Ink* magazine recently devoted several pages to a detailed description of the plan, saying in conclusion: "The Geier plan is a star example of the way a concern may adopt a real incentive to get the product out of the seasonal class. Somebody is going to get the business that is there this summer, and it is a safe bet to believe that the business is going to go to the company that goes after it with such progressive sales methods and ideas."

In the Royal midsummer contest thirty cash prizes are offered, ranging from the grand prize of \$1,000 down to \$25. Although the latest announce-

Eighteenth Annual Outing

New York City Local Celebrates Event Down on Staten Island

What is known as the largest local section in the contractor-dealer branch of the electrical industry held its eighteenth annual outing at Munger's, On the Beach, New Dorp, Staten Island, New York, on Saturday, July 15th.

The Independent Associated Electrical Contractor-Dealers of Greater New York is composed of a merger of two locals of the Metropolitan District which came together more than a year ago, and following an early custom this annual event is continued in order to promote the spirit of goodwill in its membership.



Part of the Big Crowd That Enjoyed the Annual Outing

title are hereby challenged to submit their records to any neutral and competent judge for a decision."

ment has scarcely had time to be delivered and the advertising in the trade press has just appeared, entry blanks are coming back in large quantities from retail salesmen. Dealers from all parts of the country are writing in for extra entry blanks.

More than four hundred members and guests attended this last annual event, to prove how far this live wire



Al Berry, M. Jawitz, and N. Zolinsky Who Were Interested in the Bush League Ball Games



A Bunch on the Beach, With a Bit of Gossip in the Foreground



Davison, Libbon and Stack of Brooklyn, With Otto Fuchs of Manhattan, Second From Left

bunch goes toward disseminating good fellowship.

The advance guard of the outing this year was led by Captain J. H. McKenna, the Sailor Boy, who made up an exclusive party for the purpose of indulging in fishing, preliminary to the arrival of the main delegation. The bait was furnished by the Kimball Electric Company, and when properly mixed with a little fruit juice it attracted more fish than were ever caught in a drag net even on a rainy day.

After the crowd assembled the official photograph was taken and then everybody sat down to what was termed a Rhode Island Shore Dinner, the less of which is said about the better. But who cares so long as the ginger ale and soda pop holds out?

trical Inspectors, the latter winning by the score of 4 to 1. A. Lincoln Bush umpired, and although the Sailor Boy tried hard to influence the spectators against him, because he is a member of the Bush Leaguers nobody questioned his decisions.

Other games were indulged in, including African Golf and the frolicsome game of Who Comes There, conducted by Al Berry at the Sailor Boy's Retreat—and it was a game of treat and retreat, and then repeat—and fifty could play as well as one.

After the games, Louis Freund, Master of Ceremonies, announced a vaudeville program, which was preceded with a good fellowship talk by President Bush and a somewhat apologetic talk by Chairman Newberger, who fully ex-

tertainment might have been better if the sun had not gone under a cloud, but Sailor Boy McKenna and Tom Chantler, with special box seats, enjoyed the scenery hugely. As the entertainers passed through the audience looking for the handsomest man, I. Gaynor and C. C. Bohn hid under their chairs but the National Secretary was first choice anyway, and if the electrical press is differently advised by Louis Freund, the report should be verified before publishing.

It is reported that after the return to the city a glorious Shore dinner was given out somewhere up around Times Square. Chicken was served, it is said, a la mode and without lobsters. But it was a Shore dinner just the same, because it was sponsored by Bill Shore



With the Independent Associated Boys at Staten Island

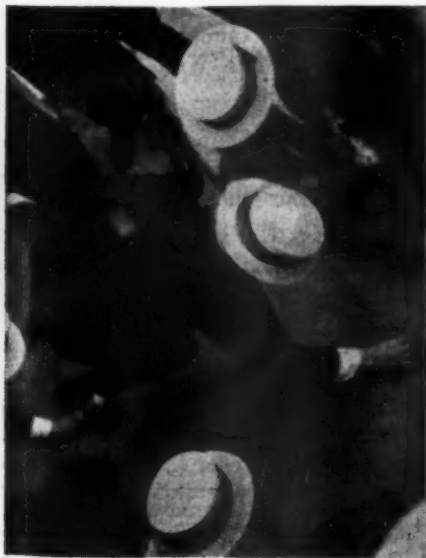
Following the more or less sumptuous repast came the baseball game between the Underwriters and the Elec-

operated the committee for the short comings—or the long coming—of the eats.

Then the professional entertainers did their stunts, which were met with vigorous applause. Sergeant at Arms O'Brien and A. Bloom thought the en-

—than whom there is no more hospitable host.

Taking it all together, the eighteenth annual outing of the Independent Associated organization was a huge success. If you don't believe it, ask those who were entertained by the Sailor Boy.



Airplane View of Interesting Game of African Golf



At Left, Tom Chantler Doing a Thinking Stunt by the Sad Sea; Center, Larry Strauss and John Macintyre Watching the Ball Game; and at Right, the Sailor Boy, Alone and Unprotected

News Notes Concerning Electrical Contractor-Dealers

Business Changes, Store Improvements, and New Establishments Opened

Lakewood Electric Company of which E. J. Anderson is proprietor, is open for business at Lakewood, New York. A full line of electrical supplies and appliances will be carried.

Newlin & Potts have opened a new electrical appliance store at 118 East Piccadilly Street, Winchester, Virginia.

Haddonfield Electric Supply Company of which Aceto and MacClelland are proprietors, will open an electrical supply store at 45 East Main Street, Haddonfield, New York. In market for fixtures and parts.

Weaver Electrical Company is reported to have opened a new electrical supply store at West Main Street, Little Falls, New York.

Buchanan-Stevens Company is featuring a full line of radio supplies at 109 South Towner Avenue, Centralia, Washington.

Carroll County Electric Company has opened an electrical supply business at Carrollton, Missouri. Incorporated capital, \$50,000.

Lester Lack is reported to have opened a new electrical supply store at Second Street, Marysville, California.

Kieffer Electric Company has opened a new store at 606 Butternut St., Syracuse, New York.

Wahoo Electric Company is featuring a full line of electrical supplies and Delco lighting fixtures at 535 Broadway Street, Wahoo, Nebraska.

Binnette Electric Company has opened a new electrical appliance and supply store at 411 Collinsville Avenue, East St. Louis, Illinois.

Hitt Electrical Company is open for business at Owensboro, Kentucky. Incorporated capital, \$25,000. Incorporators: J. L. Lambert and others.

The Newkirk Electrical Supply Company of which Harry A. Niday is proprietor, will feature a full line of electrical supplies at South Main Street, Newkirk, Oklahoma.

Bolnick and Bloomfield are opening a new electric shop at 33 Lawton Street, New Rochelle, New York.

C. C. Walls will open a new store at Bridge Street, Shinnston, West Virginia. Electrical supplies will be carried.

Fookerson Supply Company has opened an electrical supply business at 110 North Diamond Street, Mansfield, Ohio. Incorporated capital, \$30,000. Incorporators: A. C. Forsythe and others.

The Premier Service Company is reported to have opened an electrical appliance store at 1103 Walnut Street, Kansas City, Missouri.

Modern Appliance Sales Company has opened a new store at Knightstown, Indiana.

P. H. Jones is opening an electrical supply store at the First National Bank Building Block, Arcadia, California.

A. B. Cope Electric Shop is open for business at Seneca, Kansas.

Consumers' Electric Company will feature a full line of electrical and radio supplies at Osceola, Iowa.

General Appliance Company has opened a new store at 1009 Locust Street, St. Louis, Missouri.

P. & A. Electric Supply Company is open for business at Mansfield, Ohio. Incorporated capital, \$75,000. Incorporators: E. Townsend and others.

Electric Vacuum Cleaner Company is reported to have opened a new electrical appliance store at 120 North Market Street, Wichita, Kansas.

Interstate Electric Company of which Norman Bailey and Lynn Chambers are proprietors, has opened a new store carrying a full line of electrical supplies at 252 East Fourth Street, Long Beach, California.

Jones Electric Corporation is open for business at Waco, Texas. Incorporated capital, \$100,000. Incorporators: W. A. Perker and others.

The Dean Electric Construction Company has opened a new store styled "The Wife Saving Station" at 1115 Lake Street, Oak Park, Illinois.

Novex Electric Company is open for business at Maplewood, Missouri. Incorporated capital, \$6,000.

A. J. Voght will feature a full line of electrical supplies at Ann Arbor, Michigan.

William Krisch is opening an electrical appliance store at 221 Lincoln Street, Dolton, Illinois.

Mola Electric Store opened at 818 Vine Street, Cincinnati, Ohio.

P. Willett is reported to have opened a new store at West Perry Street, Paulding, Ohio. Electrical supplies will be carried.

F. P. Vandergriff has opened a new electrical supply store at Selma, California.

Al's Illuminating Store of which Albert R. Herman is proprietor, has opened at 818 Main Street, Pendleton, Oregon.

Best Electric Shop is opening an electrical supply business at Gary, Indiana. Incorporated capital, \$10,000. Incorporators: W. E. McCullough and others.

Little's Appliance Shop will open a branch store at 3333 Aldrick Avenue, Minneapolis, Minnesota. Present business located at 1028 Nicollet Avenue. A. F. Little is proprietor.

Trico Electrical Company has opened a new electrical appliance store at 560 West Adams Street, Chicago, Illinois. Incorporated capital, \$5,000. Incorporators: Albert S. Ginsberg, 1023 South Winchester Avenue, Chicago, and others.

Richmond Electric Company is reported to have opened a new store at 237 South Topeka Avenue, Wichita, Kansas. Electrical appliances will be carried.

Fortney & Heatam have opened a new electrical supply store at West Main Street, Steeleville, Illinois.

Wills Electric Company is opening a new store carrying a full line of electrical appliances at 4205 Third Street, Detroit, Michigan.

Gem Electric Company will open a new store at 109 West Fifth Street, Cincinnati, Ohio.

The Electric Shop of which J. D. Nicholson is proprietor, is open for business at Burton, Kansas.

Howell Electric Motor Company will feature electrical appliances at new store, 2610 Union Central Building, Cincinnati, Ohio.

Jay F. Quinn and J. W. Lambert are opening an electrical appliance business at the Siefert Building, East Ellsworth, Wisconsin.

Abel Electric Company has opened a new store at 571 Josephine Avenue, Detroit, Michigan, where a full line of electrical appliances will be carried.



Attached Insulating Plug

M. Propp & Co. of New York City has added a new feature to its Christmas tree lighting outfits. The insulat-



ing plug that covers the series socket cannot now be lost as it is fastened on the socket by a strong cord.

This little improvement not only safeguards against short circuits and possible shock the user has formerly been susceptible to when this plug was lost but also keeps insulating plug on hand when the tree set is ready to be disconnected. The accompanying illustration shows complete set with new improvement.

New Water Heater

A new application of the space heater, adapted to the heating of tanks where the temperature required does not exceed 300 degrees Fahrenheit, is the strap-on heater developed by the Westinghouse Electric & Manufacturing Co. Although any metal tank can be heated by this method, the principal demand for the product is for heating water in homes and small shops.

The construction of this heater is very simple. Two or more space heaters are fastened by means of three steel bands with clamps against the lower half of the tank to be heated. The purpose of the bands, which are adjustable, is to hold the heaters firmly against the surface of the tank, preventing loss of heat. All wire connections are made with asbestos covered wire over which is placed a heavy heat insulation held in its proper position by metal bands.

New Enclosing Globe

The Holophane Glass Company, Inc., New York, has recently placed on the market a new series of enclosing globes of its reflector-refractor type which are shown in the accompanying illustration.

These new units are made in three sizes of the 100, 200 and 300 watt lamps. The construction is similar to the regular reflector-refractor design with the exception that the lower part has combined refracting and diffusing



prisms of the Blondell construction which greatly lowers the intrinsic brilliancy of the unit.

A removable diffusing cup is inserted in the lower opening which prevents direct light from the lamp reaching the observer's eye and makes relamping easy.

These units have been designed especially for school, office and store illumination where high efficiency, excellent diffusion and elimination of glare are essential qualities.

Coffee Urn Heater

An electric coffee urn heater designed for use in hotels, restaurants, cafeterias, or wherever large coffee urns are used, is being made by the Westinghouse Electric & Manufacturing Company.

This heater gives a reliable temperature at three different heat intensities and is easily operated by means of a three-heat indicating snap switch. It does away with the use of matches, eliminates smoke and soot, and makes the user independent of varying gas pressures, providing uniform heat at all times.

The design is sturdy and simple throughout. The base is made of heavy cast steel with a black japan finish and is adjustable so that the heater can be raised or lowered to the most efficient



position under the bottom of the urn. The heating element is of the standard Westinghouse exposed coil type.

The heater is made in two sizes, 8 and 10 inch, two wattages and several voltages. The eight-inch size is designed for use with five and six gallon urns and the ten-inch size for urns of larger capacities.

Beautiful Tribute to Mr. Edison

The following is a message which was sent by the late Sir Arthur Pearson, the blind publisher of England, just before his death, to Thomas A. Edison on the occasion of the great inventor's seventy-fifth birthday:

I cannot wish you long life, for this the Fates have already bestowed upon you. I cannot wish you success, for success has been yours in a greater

measure than has been attained by any man of your generation. I cannot wish you good health, for this priceless boon has also been given you. I cannot wish you happiness, for surely you who have done so much for the betterment of the human race must of all men be happy.

I do wish you a longer life. I do wish you an even greater measure of success. I do wish you continued good health; and should these conditions be granted you happiness must inevitably follow.

I greatly admire your genius, your fertility and your industry, and I send you this message with all the cordiality at my command.

Condensed Notes of Interest to the Trade

The Western Electric Company, Inc., announces a change in location of its Baltimore office from 425 E. Oliver Street to 106 South Street, where larger quarters will accommodate the transaction of a greater volume of business. Sid Greenfield is in charge.

With profound sorrow The Robbins & Myers Company announces the death of Charles Frank McGilvray, chairman, board of directors.

In an endeavor to explain to the public the meaning of complete house wiring, the General Electric Company has issued a booklet entitled, "The Home of a Hundred Comforts." This reaches the ultimate buyer by reason of his being influenced to want more wiring through the extensive advertising of the company in class publications, and on request he gets the booklet together with a list of the reliable contractor-dealers in his territory.

As an aid to helping customers and prospects assist dealers and jobbers in selling a better grade of lighting fixtures to those people who must limit their expenditures for lighting equipment, the Beardslee Chandelier Mfg. Co., of Chicago has issued a booklet entitled, "Sell Them Something Better."

The National Metal Molding Co. of Pittsburgh announces the appointment of Grant Davis as advertising manager. Mr. Davis was formerly connected with the National Fireproofing Co.

Frank B. Chapman of the Bryant Electric Co., Bridgeport, has been promoted from the work as field representative to the position of eastern sales manager, succeeding George V. W. Ingham, resigned.

Harvey Hubbell, Inc., of Bridgeport has issued literature descriptive of its shade holders, brass shell and candle sockets, te caps, and plugs.

The Okonite Co., Passaic, N. J., has opened a branch office in San Francisco at 509 New Call Building. S. Herbert Lanyon is manager.

A. B. Saurman, general sales manager of the Standard Underground Cable Co., Pittsburgh, has been elected a vice president of the company and will combine the duties of his new office with those of general manager of sales.

After approximately eight years of service, Walter M. Fagan has severed his connection with the Edison Electric Appliance Co. to accept a responsible position with The Chicago Flexible Shaft Co.

The Peerless Light Co. of Chicago has taken on several new lines of electrical merchandise, among them being the Edward N. Riddle Co. of Toledo, jobbing their new line of decorative lighting fitments.

"Scientific Street Lighting" is the title of a new guide to good street lighting practice which has recently been issued by the Holophane Glass Co., of New York City.

The F. W. Wakefield Brass Co. announces that plans are now under way for enlarging its factory at Vermilion, Ohio.

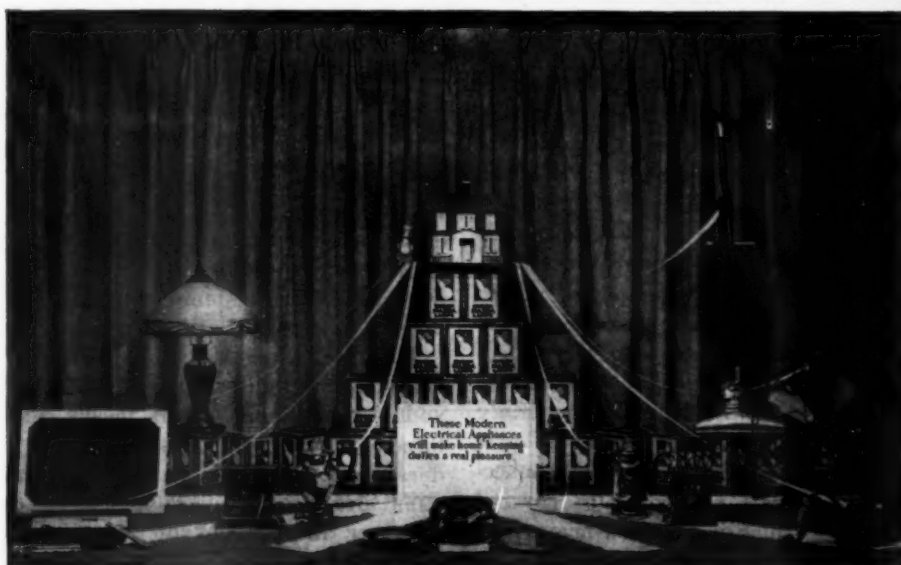
The Johns-Pratt Co. of Hartford, whose selling arrangements through the Johns-Manville Co. were recently dissolved, has established a Pacific coast branch of its own under the direction of A. J. Moan in the Call Build-

ing New Montgomery Street, San Francisco.

The Economy Fuse & Mfg. Co. of Chicago announces the appointment of Chas. H. Bluske as district sales manager of the Los Angeles office at 1304 Maltman Avenue.

Announcement is made by the general offices of the Gainaday Electric Co., Pittsburgh, of the appointment of Joseph V. Guilfoyle as general sales manager.

A number of changes in personnel are announced by the Westinghouse Electric & Mfg. Co. as follows: M. C. Rypinski of the radio sales division has transferred his headquarters to New York as a branch of the headquarters sales department. F. R. Kohnstamm has been appointed acting manager of the appliance section of the merchandising department and will be located in Mansfield, Ohio. J. W. Robinson will succeed C. E. Allen as manager of the central station division of the Chicago office. H. A. Lynette has been appointed syndicate representative of the central station division of the Chicago office. T. L. Schrantz, formerly manager of the supply division of the Buffalo office has been appointed branch manager of the Syracuse office, and George W. Roosa has been made acting manager of the supply division, succeeding Mr. Schrantz. Changes in the Chicago office include the elevation of J. W. Robinson to the managership of the central station division, in which position he succeeds C. E. Allen, who has become district manager of the St. Louis office. Norman Stewart has been branch manager of the Minneapolis office.



Passersby Became Onlookers and Onlookers Became Live Prospects Through Attention Drawing Qualities of Ingenious Display by E. F. Newkirk of Edison Lamp Works

